



# Charlotte Land Development Standards Manual (CLDSM)

Revision N<sup>o</sup>. 14  
July 29, 2016

**SPECIAL NOTE:**

With Revision No. 14 to the Charlotte Land Development Standards Manual (CLDSM), please note the following previous details were removed from the manual and are no longer accepted standards:

10.32A

10.32B

10.33A

10.33B

10.34A

10.34B

## CLDSM REVISION LOG

The original effective date of the Charlotte Land Development Standards Manual is December 1, 2006. This log is a description of all standard revisions from that date forward.

REVISION NO.	REVISION DATE	STANDARD No.	NAME	DESCRIPTION OF REVISION
1	1/1/2008	10.22	Concrete Sidewalks	Changed cross-slope label to 1/4" per foot
1	1/1/2008	10.24A	Commercial Type II and Residential Drop Curb Type I Driveway with Sidewalk Abutting Curb (2'-6" Curb and Gutter)	Updated driveway width table, adjusted cut/fill slope percentages to match other DW details
1	1/1/2008	10.24B	Commercial Type II and Residential Drop Curb Type I Driveway with Sidewalk Abutting Curb (6"X18" Vertical Curb)	Updated driveway width table, adjusted cut/fill slope percentages to match other DW details
1	1/1/2008	10.24C	Commercial and Residential Drop Curb Driveway with Sidewalk Abutting Curb	Updated driveway width table
1	1/1/2008	10.25A	Residential Drop Curb Type I Driveway with Planting Strip (2'-6" Curb and Gutter)	Updated driveway width table
1	1/1/2008	10.25C	Residential Drop Curb Type I Driveway with Planting Strip (6"X18" Vertical Curb)	Updated driveway width table, Removed overprint "std. no"
1	1/1/2008	10.26	Drop Curb Driveway – Monolithic Curb and Sidewalk	Updated driveway width table
1	1/1/2008	10.27A	Residential Driveway (Type I) Valley Gutter	Updated driveway width table, adjusted cut/fill slope percentages to match other DW details
1	1/1/2008	10.27B	Commercial Type II Driveway For 2'-0" Valley Gutter	New detail
1	1/1/2008	10.37	Typical Local Residential To Local Limited Street Taper	Curb lines adjusted to align across intersection; added note #4
1	1/1/2008	11.01	Local Residential Street Typical Section	Removed "Marshall Mix" pavement specifications, Intermediate course changed to S9.5B from S9.5A
1	1/1/2008	11.02	Local Residential Typical Ditch Type Street Section	Removed "Marshall Mix" pavement specifications, Intermediate course changed to S9.5B from S9.5A
1	1/1/2008	11.03	Divided Residential Street Typical Section	Removed "Marshall Mix" pavement specifications, Intermediate course changed to S9.5B from S9.5A
1	1/1/2008	11.04	Local Limited Residential Street Typical Section	Removed "Marshall Mix" pavement specifications, Intermediate course changed to S9.5B from S9.5A
1	1/1/2008	11.05	Local Limited Residential Typical Ditch Type Street Section	Removed "Marshall Mix" pavement specifications, Intermediate course changed to S9.5B from S9.5A
1	1/1/2008	11.06	Residential Collector Street Typical Section	Removed "Marshall Mix" pavement specifications, Intermediate course changed to S9.5B from S9.5A
1	1/1/2008	11.07	Residential Collector Street Ditch Type Typical Section	Removed "Marshall Mix" pavement specifications, Intermediate course changed to S9.5B from S9.5A
1	1/1/2008	11.08	Limited Residential Collector Street Type Typical Section	Removed "Marshall Mix" pavement specifications, Intermediate course changed to S9.5B from S9.5A
1	1/1/2008	11.10	City Of Charlotte 45' Local Traditional Neighborhood Development Street	Removed "Marshall Mix" pavement specifications, Intermediate course changed to S9.5B from S9.5A
1	1/1/2008	11.11	Commercial Street Typical Sections	Removed overprint "std. no"
1	1/1/2008	11.14	Divided Private Street Typical Sections	Removed "Marshall Mix" pavement specifications
1	1/1/2008	11.15	Typical Sections Improvement Existing NCDOT Thoroughfares	Removed detail from manual
1	1/1/2008	11.18	Residential Hammerhead Detail	Added R/W, sidewalk, and planting strip dimensions; added ramps
1	1/1/2008	11.21	Oversized Residential Cul-De-Sacs with Raised Planter Island	Added back of curb radius dimension for 2'-6" C&G; revised note #2
1	1/1/2008	20.00B	NCDOT Standards Approved For Use in the City of Charlotte and Charlotte ETJ	Fixed 840.04 and 840.05 to list correct standard reference 840.54
1	1/1/2008	20.00C	NCDOT Standards Approved For Use in the City of Charlotte and Charlotte ETJ	Added note regarding waffle wall to 840.45
1	1/1/2008	20.03	Double Brick Catch Basin 15"-36" Pipe	Revised note #1 per NCDOT requirements
1	1/1/2008	20.22	Flared End Section 12" to 72" Pipe	Renumbered - previously 20.23A, added 3:1 note on drawing in lieu of H:V column in data block; Minimum concrete PSI in note #3 changed from 4000 to 3600
1	1/1/2008	20.34	Offset Catch Basin	Changed slope of flume under grate from 0.5% to 1"/ft
1	1/1/2008	30.00	Special Erosion Control Requirements & Notes	New detail
1	1/1/2008	30.01	Temporary Sediment Trap	New detail
1	1/1/2008	30.02	Gravel and Rip Rap Sediment Basin	Removed detail from manual
1	1/1/2008	30.02A	Skimmer Sediment Basin	New detail
1	1/1/2008	30.02B	Skimmer	New detail
1	1/1/2008	30.03	Sediment Basin	New detail
1	1/1/2008	30.06A	Temporary Silt Fence	Removed alternate installation detail; revised filter fabric anchor depth; 24" filter fabric above ground
1	1/1/2008	30.06B	High Hazard Temporary Silt Fence	Removed alternate installation detail; revised filter fabric anchor depth; 24" filter fabric above ground
1	1/1/2008	30.09	Hardware Cloth and Gravel Inlet Protection	New detail
1	1/1/2008	30.12	Gravel and Rip Rap Filter Berm Basin	Added data block; updated volume and surface area req'ments; DA <= 5 AC
1	1/1/2008	30.19	Baffle Installation	Revised note #3; added note #5
1	1/1/2008	30.20	Embankment Matting Detail	Added notes #2 and #4
1	1/1/2008	40.03	Large and Small Maturing Tree Pit with Grate in Sidewalk (Plan)	Updated pit dimensions per City Arborist
1	1/1/2008	40.03A	Large and Small Maturing Tree Pit with Grate in Sidewalk (Section)	Updated pit dimensions per City Arborist
1	1/1/2008	40.03B	Large and Small Maturing Tree Pit with Grate in Sidewalk (Section)	Updated pit dimensions per City Arborist
1	1/1/2008	40.03C	Large and Small Maturing Tree Pit with Grate in Sidewalk (Section)	Updated pit dimensions per City Arborist
1	1/1/2008	50.09B	Parking Standards (Continued)	Revised note #4 regarding wheelstops
1	1/1/2008	50.11	Signage and Pavement Markings at Roundabouts	Fixed 20' dimension placement behind yield line

REVISION NO.	REVISION DATE	STANDARD No.	NAME	DESCRIPTION OF REVISION
2	7/1/2008	21.00 - 21.23	2100 Series - "Stormwater BMP Details"	Added new section to manual: 2100 Series - "Stormwater BMP Details" for use with Post-Construction Controls Ordinance, effective July 1, 2008
2	7/1/2008	20.31A/B	Best Management Practices Wet Pond details	These details are no longer needed - they replaced by new details 21.05 through 21.09
2	7/1/2008	Specs	Removal of error	Remove the words "and Vert." from Section I.B.1.f. of the Specifications and Special Provision Notes
3	1/30/2009	Text pg 16, 17	Notes and Special Provisions	Revised text regarding posting of bonds; added CDOT Pavement Marking Stds to reference list
3	1/30/2009	10.23	Monolithic Concrete Curb and Sidewalk	Revised dimension "A," added dimension "B"
3	1/30/2009	10.32B	Accessible Ramp Sections without planting strip (2'6" Curb & Gutter)	Added 6" sidewalk thickness dimension
3	1/30/2009	11.16	City of Charlotte and ETJ Residential Cul-de-sac Detail	Removed "20'R," "IN ETJ," "33' ETJ" - now consistent with NCDOT details
3	1/30/2009	20.28	Subdrain Detail	Added notes 5-9.
3	1/30/2009	30.02A	Skimmer Sediment Basin	Clarified Sediment Storage elevation & dimensions at spillway.
3	1/30/2009	30.03A	Sediment Basin	Clarified Sediment Storage elevation & dimensions at spillway, add note #5 re: H; changed std to 30.03A
3	1/30/2009	30.03B	General Notes - Sediment Basin	Inadvertently removed during previous revision. Added back in & revised to match NCDENR manual
3	1/30/2009	40.03	Large and Small Maturing Tree Pit with Grate in Sidewalk (Plan)	Added note re: City std tree grate
3	1/30/2009	40.03A	Large and Small Maturing Tree Pit with Grate in Sidewalk (Section)	Added reference to CLDS #20.28
3	1/30/2009	40.03B	Large and Small Maturing Tree Pit with Grate in Sidewalk (Section)	Added reference to CLDS #20.28
3	1/30/2009	40.03C	Large and Small Maturing Tree Pit with Grate in Sidewalk (Section)	Added reference to CLDS #20.28; added 10' width dimension.
3	1/30/2009	40.06	6' Tree Planting Strip UMUD Only	Added reference to CLDS #20.28
3	1/30/2009	40.08A	Median Greater than 120 Inches, Excavation, Drainage and Backfill	Changed top of planting mix to be a horizontal line; "removed 12" max at center"
3	1/30/2009	40.08B	Median Greater than 120 Inches, Excavation, Drainage and Backfill	Changed top of planting mix to be a horizontal line; "removed 12" max at center"
3	1/30/2009	40.08C	Median Greater than 120 Inches, Excavation, Drainage and Backfill	Changed top of planting mix to be a horizontal line; "removed 12" max at center"
4	7/1/2009	10.34B	Accessible Ramp Sections Monolithic Curb and Sidewalk	Removed stray dimension arrows/typo
4	7/1/2009	10.36B	Culvert Crossings on Residential and Commercial Streets	added info to note #9 re: clear zone and/or handrail
4	7/1/2009	10.40A	Directional Accessible Ramp with Small/Medium Curb Radii	New Detail
4	7/1/2009	10.40B	Directional Accessible Ramp with Large Curb Radius	New Detail
4	7/1/2009	11.07	Residential Collector Street Ditch Type Street Typical Section	Revised Street Classification System to properly show "Class V"
4	7/1/2009	11.08	Limited Residential Collector Street Typical Section	Revised Street Classification System to properly show "Class V"
4	7/1/2009	11.09	Arterial Street Typical Sections	Revised Street Classification System to properly show "Classes III and IV"
4	7/1/2009	11.12	Divided Commercial Street Typical Section	Revised title of detail for clarity
4	7/1/2009	11.13	Private Street Typical Sections	Revised title of detail for clarity
4	7/1/2009	11.18A	Residential Hammerhead Detail	Changed standard detail number from 11.18 to 11.18A
4	7/1/2009	11.18B	Temporary Turnaround Local Residential Street (Optional)	New Detail
4	7/1/2009	21.00	Bioretention Plan	Added notes re: vandal-proof locking cap, double hammered hardwood mulch
4	7/1/2009	21.01	Bioretention Cross-section	Minor adjustments for clarity, added note #7
4	7/1/2009	21.23	Underground Sand Filter	added notes for clarity and to match BMP Design Manual re: 1" debris screen, 12" gravel around drain
4	7/1/2009	30.06A	Temporary Silt Fence	Removed note #1, adjusted note numbering, adjusted bury depth to 8", post spacing to 6' Max
4	7/1/2009	30.06B	High Hazard Temporary Silt Fence	Adjusted note #1 to read "wire fencing" instead of "filter fabric fence", adjusted bury depth to 8"
4	7/1/2009	50.08A	End of Roadway Marker	Removed (ER-1) from title, added notes 3 & 4, added Connectivity sign / 50.08C, added OM4-3 note
4	7/1/2009	50.08B	End of Roadway Marker Guard Rail Clamp Installation	Removed (ER-1) from title and notes
4	7/1/2009	50.08C	Street Connectivity Sign for End-of-Road Barricade	New Detail
4	7/1/2009	50.09C	Parallel Parking Standards	Show reverse curves on curbline with chamfers optional, show 22' min length of pkg space
4	7/1/2009	TEXT pg 17-21	Notes and Special Provisions	Added List of Approved Plant Species (Trees & Shrubs) to text.

REVISION NO.	REVISION DATE	STANDARD No.	NAME	DESCRIPTION OF REVISION
5	7/1/2010	20.00B	NCDOT Standards for use in City of Charlotte and ETJ	Added reference to 20.05A & B
5	7/1/2010	20.00C	NCDOT Standards for use in City of Charlotte and ETJ	Removed reference to "840.06 Manhole Frame and Cover" - does not exist.
5	7/1/2010	20.05A	Slab Type Catch Basin 15" Thru 48" Pipe	Added old std. detail back in CLDSM to provide details how to build slab type CB with 4" deep MH cover
5	7/1/2010	20.05B	Manhole Ring and Cover for Slab Type Catch Basin	Added old std. detail back in CLDSM to provide details how to build slab type CB with 4" deep MH cover
5	7/1/2010	20.28	Subdrain Detail	Clarified PVC ratings, add reference to Type CP and SP HDPE. Allow Sched. 40 PVC under roadways.
5	7/1/2010	21.00	Bioretention Plan	Added note regarding Post-Construction Controls Easement (PCCE)
5	7/1/2010	21.01	Bioretention Cross-section	Added PCCE note, clarified specs for stone curtain, underdrain, cleanouts, tree plantings, amended soil
5	7/1/2010	21.02	Bioretention Planting Plan	Added note re: small maturing trees in amended soils
5	7/1/2010	21.03	Bioretention Concrete Curb Spillway	REMOVED
5	7/1/2010	21.06	Wetpond Profile	Added PCCE note, various drafting changes for clarity, moved outlet orifice to perm. pool elev.
5	7/1/2010	21.08	Wetpond Littoral Shelf and Berm detail	Moved outlet orifice to perm. pool elev.
5	7/1/2010	21.11	Wetland Profile	Added PCCE note
5	7/1/2010	21.16	Enhanced Grass Swale Details	Added PCCE note
5	7/1/2010	21.17	Grass Channel	Added PCCE note
5	7/1/2010	21.19	Infiltration Trench	Added PCCE note
5	7/1/2010	21.23	Underground Sand Filter	Added PCCE note
5	7/1/2010	30.01	Temporary Sediment Trap	Removed misleading titles "Cross-section" and "Plan View"
5	7/1/2010	50.12	Emergency Vehicle Median Crossover	Added note #3 re: use at RI/RO entrances only with CDOT approval
5	7/1/2010	TEXT pg 4-5	Section I.B.1. "Public Streets"	Removed Min. Stopping Sight Distance values, added note.
5	7/1/2010	TEXT pg 9	Section I.F.6. "Sidewalks and Driveways"	Added note re: measurement and payment of curb and gutter for drop curb driveways
5	7/1/2010	TEXT pg 13	Section II.E.4. "Storm Drainage: Standards for Design"	Replace reference to 4" PVC or Metal perf. Pipe to instead reference "subdrains"
REVISION NO.	REVISION DATE	STANDARD No.	NAME	DESCRIPTION OF REVISION
6	1/1/2011	Text pg 4, 5, 6	Section B. "Standards of Street Design"	Amended design criteria to match USDG
6	1/1/2011	10.25F	Commercial Type IV Driveway Standard	Clarified dimensions on wings
6	1/1/2011	10.27A	Residential Driveway (Type I) For 2'-0" Valley Gutter	Added 4x4 wings, adjusted driveway width table to account for wings
6	1/1/2011	11.16	Residential Cul-de-Sac Detail	Removed S/W around bulb, removed short C-D-S, removed notes #1 & 6, added #4
6	1/1/2011	11.17	Office / Commercial / Industrial Cul-de-sac Detail	Adjusted Right-of-way outward to accommodate larger planting strip and sidewalk
6	1/1/2011	11.18A	Residential Hammerhead Detail	Removed S/W around bulb, added note #3
6	1/1/2011	11.21	Oversized Residential Cul-de-sac with raised Planter Island	Removed S/W around bulb, added note #7
6	1/1/2011	20.00	NCDOT Standards for use in City of Charlotte and ETJ	Removed reference to 842.01, 842.02, 842.03 (Retaining Walls)
6	1/1/2011	20.03	Brick Double Catch Basin 15" thru 36" Pipe	Removed previous note #1 that exempted this detail from use on ETJ streets. OK now per NCDOT
6	1/1/2011	U-01 through U-07	USDG typical street sections	Added new typical sections for USDG streets
REVISION NO.	REVISION DATE	STANDARD No.	NAME	DESCRIPTION OF REVISION
7	7/1/2011	10.28	Type III Driveway Entrance	Added note re: option for depth of concrete gutter across entrance
7	7/1/2011	10.36A	Culvert Crossings on Residential and Commercial Streets	Replaced "Handrail" reference with "Safety Rail"
7	7/1/2011	10.36B	Culvert Crossings on Residential and Commercial Streets	Replaced "Handrail" reference with "Safety Rail"
7	7/1/2011	20.05A	Slab Type Catch Basin 15" Thru 48" Pipe	Added option for using Drop Inlet Frame and Grate NCDOT standard 840.16
7	7/1/2011	20.23	Rip Rap Aprons at Outfalls Other than SWIM	Added Thickness=10" Min. to match Site Checklist
7	7/1/2011	50.04A	Safety Rail	Changed name from "Typical Handrail" to "Safety Rail" to avoid confusion relating to ADA requirements
7	7/1/2011	50.04B	Safety Rail Warrants	Changed name, revised and updated the warrants. Added detailed exhibits.

REVISION NO.	REVISION DATE	STANDARD No.	NAME	DESCRIPTION OF REVISION
8	1/1/2012	10.27A	Residential Driveway (Type I) For 2'-0" Valley Gutter	Moved Section A-A to middle of apron to better illustrate 6" thickness requirement
8	1/1/2012	11.13	Private Street Typical Sections	Added note 4, re: section not to be used to meet connectivity req'ts of Subdivision/Zoning ordinances
8	1/1/2012	20.00C	NCDOT Standards for use in City of Charlotte and ETJ	Added clarifying note regarding 340.34, Traffic Bearing Junction Box
8	1/1/2012	20.03	Brick Double Catch Basin 15" thru 36" Pipe	Added note 8, re: weep holes
8	1/1/2012	20.17A	Concrete Wingwall With Splash Pad	Fixed Typo: Removed "MIN." label over the "H" column
8	1/1/2012	30.01	Temporary Sediment Trap	Changed Drainage Area max to 1 Ac, per DWQ SW General Permit requirements
8	1/1/2012	30.17A	Seeding Schedule	Removed notes 1 and 2, regarding seeding timeframes, see Site Checklist for new notes.
8	1/1/2012	50.09C	Parallel Parking Standards	Added info to note 5, re: sloping parking toward flow line only permitted if street grade is 2% or more.
REVISION NO.	REVISION DATE	STANDARD No.	NAME	DESCRIPTION OF REVISION
9	7/1/2012	Text pgs 17-24	Section IV, Approved Plant Species	Update to the Approved Tree Species List, per Urban Forestry and LS Mgmt, adjust page #'s.
9	7/1/2012	10.24C	Commercial Type II and Res. Type I Drop Curb Driveway w/ SW abutting Curb (6x18" vert curb)	Removed previously shown sidewalk width, adjusted to provide 4' continuous passage
9	7/1/2012	10.25A	Residential Drop Curb Type I Driveway with Planting Strip (2'-6" Curb and Gutter)	Added minimum vertical dimension of 4' on flare
9	7/1/2012	10.25C	Residential Drop Curb Type I Driveway with Planting Strip (6"x18" Vert curb)	Added minimum vertical dimension of 4' on flare, drafting changes for clarity
9	7/1/2012	10.25F	Commercial Type IV Driveway Standard	Added note 6" thickness through DW, removed "R/W" for clarity
9	7/1/2012	10.26	Drop Curb Driveway Monolithic Concrete Curb and Sidewalk	Adjusted dimensions for 4' Continuous Passage.
9	7/1/2012	10.32A	Accessible Ramp Standard without Planting Strip 2'-6" Curb and Gutter	Adjusted dimensions for 4' Continuous Passage.
9	7/1/2012	10.32B	Accessible Ramp Sections without planting strip (2'6" Curb & Gutter)	Adjusted dimensions for 4' Continuous Passage, added detectable warning mat in cross section
9	7/1/2012	10.34A	Accessible Ramp Standard Monolithic Curb and Sidewalk	Adjusted dimensions for 4' Continuous Passage.
9	7/1/2012	10.34B	Accessible Ramp Sections Monolithic Curb and Sidewalk	Adjusted dimensions for 4' Continuous Passage, added detectable warning mat in cross section
9	7/1/2012	20.25	Trench Detail For Storm Drain	Fixed Typo
9	7/1/2012	20.29	Overlapping Storm Drainage / Sanitary Sewer Easements	Revised diagram and adjusted note so ensure required trench width can be provided
9	7/1/2012	30.00	Special Erosion Control Requirements & Notes	Added reference to 6.11 Permanent Seeding, and added NCDOT Roadway Std. Dwgs as reference, along with NCDOT 1606.1 Special Sediment Fence
9	7/1/2012	30.17	Temporary Seeding Schedule	Revamped detail to match NCENR ESCPDM requirements and LS Mgmt requirements
9	7/1/2012	40.04A, B, C, D	Irrigation details	REMOVED details - similar details will be housed in separate Landscape Management standards doc
9	7/1/2012	40.04	Typical Valve and Valve Box Installation	New detail - replaces previous 40.04D
9	7/1/2012	40.05A	Shrub Planting Bed	Changed from 40.05 to 40.05A, "Acceptable Plant Media" note
9	7/1/2012	40.05B	Individual Small Shrub / Tree Planting	New Detail
9	7/1/2012	40.08A	Median Greater than 120 Inches, Excavation, Drainage and Backfill	Note 3 revised to update pipe options, allowing HDPE as well as PVC
9	7/1/2012	40.08B	73 to 120 Inch Median, Excavation, Drainage and Backfill	Note 3 revised to update pipe options, allowing HDPE as well as PVC
9	7/1/2012	40.08C	48 to 72 inch Median, Excavation, Drainage, and Backfill	Note 3 revised to update pipe options, allowing HDPE as well as PVC
9	7/1/2012	40.09	Root Crown Depths	Changed title, changed wording to "Root Flare" instead of "Root Crown"
9	7/1/2012	40.11	Bridging Tree Roots	Added "Rebar Chairs", removed rebar embed detail, added diagonal groove joint
9	7/1/2012	50.05A	Street Name Sign	Complete revision to match City's current installation practice
9	7/1/2012	50.05B	Street Name Sign	Complete revision to match City's current installation practice
9	7/1/2012	50.06	Street Name Sign Installation Locations	Detail of post installation moved to 50.05A
9	7/1/2012	50.10A	Accessible Parking and Signage Standards	Update to match current MUTCD/CLDSM numbering, Changed table to ref ADA standards, added note 4, Changed sign for hatched spaces to "No Parking Any Time" MUTCD R7-1
9	7/1/2012	50.10B	Supplemental Van Accessible Sign (R7-8P)	changed title, adjusted notations to match current MUTCD Manual
9	7/1/2012	50.10C	Supplemental Accessible Sign	Changed title, revised notations to match MUTCD
9	7/1/2012	50.14	Piano-style Crosswalk	New detail provided by CDOT

REVISION NO.	REVISION DATE	STANDARD No.	NAME	DESCRIPTION OF REVISION
10	1/1/2013	11.09	Arterial Street Typical Sections	Updated Intermediate Course thickness from 2.25 to 2.5" to match current SuperPave spec requirements
10	1/1/2013	11.19A	Residential Alley Detail One-Way Operation	Clarified dimensions D3 and D4
10	1/1/2013	11.19B	Residential Alley Detail Double-loaded with Two-Way Operation	Clarified dimensions D3 and D4
10	1/1/2013	11.19C	Residential Alley Detail Single-loaded with Two-Way Operation	Clarified dimensions D3 and D4
10	1/1/2013	20.00C	NCDOT Standards approved for use in City of Charlotte and ETJ	Changed 840.32 title to match current NCDOT manual title for same detail
10	1/1/2013	21.24	Surface Sand Filter	New detail, same as Mecklenburg County's detail of same number
10	1/1/2013	21.25	Surface Sand Filter Section	New detail, same as Mecklenburg County's detail of same number
10	1/1/2013	50.06	Street Name Sign Installation Locations	Moved street name signs and stop signs into planting strip for diagram with sidewalk shown.
REVISION NO.	REVISION DATE	STANDARD No.	NAME	DESCRIPTION OF REVISION
11	7/1/2013	Specs	Text page 9, note F.8. "Sidewalks and Driveways"	Updated note F.8 to reference correct detail numbers that have curb and gutter along driveway apron
11	7/1/2013	10.33B	Accessible Ramp Sections 2'-0" Valley Gutter	Added 6" sidewalk thickness dimension
11	7/1/2013	10.34B	Accessible Ramp Sections Monolithic Curb and Sidewalk	Added 6" sidewalk thickness dimension
		10.36A	Culvert Crossings on Residential and Commercial Streets	Fixed curb transition to reflect 10.19; added note #2 re: 8' SW at back of curb if wide PS & SW street
11	7/1/2013	U-07	Local Collector Street Typical Section	Fixed R/W width dimension to be 36' ea. side - also added 26' dim from CL to SW if Valley Gutter
11	7/1/2013	11.09	Arterial Street Typical Sections	Updated all course thicknesses to be consistent with current NCDOT requirements for Arterial Streets
		20.00A	NCDOT Standards Approved For Use in the City of Charlotte and Charlotte ETJ	300.01 was previously included on this table, but this revision removed reference to "Method A"
11	7/1/2013	20.25	Trench Detail For Storm Drain	Removed - reference to NCDOT 300.01 now included in 20.00A
11	7/1/2013	21.24	Surface Sand Filter	Detail re-drawn with different configuration so sand filter does not take up entire bottom of detention area & swapped inset detail for rip-rap berm into plan view, and put standpipe as "inset" detail
REVISION NO.	REVISION DATE	STANDARD No.	NAME	DESCRIPTION OF REVISION
12	7/15/2014	10.25F	Type IV Driveway	Revised title of detail to "Type IV Driveway" from "Commercial Type IV Driveway; added info re: residential dw application; added note re: end treatment; added driveway standard widths table
12	7/15/2014	10.31B	Accessible Ramp Section with Planting Strip 2'-6" Curb and Gutter	Drafting update for clarity; added detectable warning mat in section view
12	7/15/2014	10.32B	Accessible Ramp Sections without Planting Strip 2'-6" Curb and Gutter	Corrected dimension
12	7/15/2014	10.33B	Accessible Ramp Sections 2'-0" Valley Gutter	Added detectable warning mat in section view
12	7/15/2014	10.34B	Accessible Ramp Sections Monolithic Curb and Sidewalk	Corrected dimension
12	7/15/2014	10.35B	Truncated Domes Plan and Cross-section	Corrected dimensions, added reference to NCDOT 848.06
12	7/15/2014	10.40A	Directional Accessible Ramp With Small/Medium Curb Radii	Due to NCDOT concerns, added note re: not for use in ETJ, removed ETJ from title block
12	7/15/2014	10.40B	Directional Accessible Ramp With Large Curb Radius	Due to NCDOT concerns, added note re: not for use in ETJ, removed ETJ from title block
12	7/15/2014	11.01	Local Residential Street Typical Section	Added note re: ETJ Streets 1" may be placed when approved by NCDOT
12	7/15/2014	11.02	Local Residential Typical Ditch Type Street Section	Added note re: ETJ Streets 1" may be placed when approved by NCDOT
12	7/15/2014	11.03	Divided Residential Street Typical Section	Added note re: ETJ Streets 1" may be placed when approved by NCDOT
12	7/15/2014	11.04	Local Limited Residential Street Typical Section	Removed note re: sidewalk only on one side of street; Added ETJ 1" note
12	7/15/2014	11.05	Local Limited Residential Typical Ditch Type Street Section	Removed note re: sidewalk only on one side of street; Added ETJ 1" note
12	7/15/2014	11.06	Residential Collector Street Typical Section	Added note re: ETJ Streets 1" may be placed when approved by NCDOT
12	7/15/2014	11.07	Residential Collector Street Ditch Type Typical Section	Added note re: ETJ Streets 1" may be placed when approved by NCDOT
12	7/15/2014	11.08	Limited Residential Collector Street Type Typical Section	Added note re: ETJ Streets 1" may be placed when approved by NCDOT
12	7/15/2014	11.10	City Of Charlotte 45' Local Traditional Neighborhood Development Street	Added note re: ETJ Streets 1" may be placed when approved by NCDOT
12	7/15/2014	11.16	City of Charlotte and ETJ Residential Cul-de-sac Detail	Removed reference to ETJ, added note referencing NCDOT Subdivision Roads Minimum Construction Standards Manual; added cross section A-A showing grades at back of curb
12	7/15/2014	11.18A	Residential Hammerhead Detail	Removed reference to ETJ, added note referencing NCDOT Subdivision Roads Minimum Construction Standards Manual
12	7/15/2014	11.21	Oversized Residential Cul-de-sacs with Raised Planter Island	Removed reference to ETJ, added note referencing NCDOT Subdivision Roads Minimum Construction Standards Manual
12	7/15/2014	20.28	Subdrain Detail	Added new detail views and notes regarding connections at storm structures
12	7/15/2014	30.02A	Skimmer Sediment Basin	Skimmer length requirement added; added notes; adjust pond bottom to include 1' sediment storage
12	7/15/2014	30.02B	Skimmer	Skimmer length requirement added
12	7/15/2014	30.03A	Sediment Basin	Skimmer length requirement added; added notes; adjust pond bottom to include 1' sediment storage; changed 3rd baffle to be a typical baffle instead of Hardware Cloth as previously shown.
12	7/15/2014	30.11A	Stabilized Construction Entrance	Revised note #1 to read "and" instead of "or"; added note re: sweeping aggregate each night
12	7/15/2014	30.11C	Construction Entrance - Single Family Lot	New Detail
12	7/15/2014	30.16	Slope Stability	Added "Alternative 2" for 3' wide bench set on-contour

12	7/15/2014	40.03	Large and Small Maturing Tree Pit With Grate in Sidewalk (PLAN)	Adjusted dimension location; show/label curb & gutter
12	7/15/2014	40.03C	Large and Small Maturing Tree Pit With Grate in Sidewalk (SECTION)	Adjust 1'-6" dimension and 5' dimension; show consistent soil hatch type
12	7/15/2014	40.11	Reinforced Concrete Sidewalk (Bridging Tree Roots)	Revised title of detail to "Reinforced Concrete Sidewalk (Bridging Tree Roots); added note
12	7/15/2014	50.10A	Accessible Parking and Signage Standards	Updated Accessible VAN Parking requirements to match Section 1106 of NC State Building Code; added code reference
12	7/15/2014	U-01	Local Residential Narrow Street Typical Section	Added note re: ETJ Streets 1" may be placed when approved by NCDOT
12	7/15/2014	U-02	Local Residential Medium Street Typical Section	Added note re: ETJ Streets 1" may be placed when approved by NCDOT
12	7/15/2014	U-03A	Local Residential Wide Street Typical Section	Added note re: ETJ Streets 1" may be placed when approved by NCDOT
12	7/15/2014	U-03B	Local Residential Wide Street at Midblock with Curb Extension Typical Section	Added note re: ETJ Streets 1" may be placed when approved by NCDOT
12	7/15/2014	U-03C	Local Residential Wide Street at Intersection with Curb Extension Typical Section	Added note re: ETJ Streets 1" may be placed when approved by NCDOT
12	7/15/2014	U-07	Local Collector Street Typical Section	Added note re: ETJ Streets 1" may be placed when approved by NCDOT
REVISION NO.	REVISION DATE	STANDARD No.	NAME	DESCRIPTION OF REVISION
13	7/31/2015	TEXT PG 9	Section I. F. (Sidewalks and Driveways)	add note referring to WATCH manual and MUTCD, latest edition - for construction zone pedestrian routes and signalization and controls for actuators; revise I. F. 1. to read 1.5% (2.00% max) instead of 1/4" per foot; added table showing Example Construction Dimensions for sidewalk; Included information regarding ramps at 7.5% (8.33% Max) slope; revised I.F.3. to read 5' min. wide sidewalk instead of 4' min.
13	7/31/2015	TEXT PG 10	Section II. A. (Storm Drainage)	Added note - no changes in storm pipe alignment except at structures, max length between access points is 300 LF
13	7/31/2015	TEXT PG 24	References	Added references to MUTCD and PROWAG
13	7/31/2015	10.22	Concrete Sidewalks	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; revised min. width of sidewalk on thoroughfares to be 6' instead of 5' per USDG; added note 7, 8 per ADA consultant report; added table showing Example Construction Dimensions
13	7/31/2015	10.23	Monolithic Concrete Curb and Sidewalk	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot
13	7/31/2015	10.24A	Commercial Type II and Residential Drop Curb Type I Driveway with Sidewalk Abutting Curb (2'-6" Curb and Gutter)	Added note re: Fire access max 10%, revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; revised 1:12 slope to read 7.5% (8.33% max); removed dimension on wings and label "varies"; label sidewalk 5' min. width.
13	7/31/2015	10.24B	Commercial Type II and Residential Drop Curb Type I Driveway with Sidewalk Abutting Curb (6"x 18" Vertical Curb)	Added note re: Fire access max 10%, revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; revised 1:12 slope to read 7.5% (8.33% max); removed dimension on wings and label "varies"; label sidewalk 5' min. width.
13	7/31/2015	10.24C	Commercial and Residential Drop Curb Driveway with Sidewalk Abutting Curb	revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; 1:12 Revised to read 7.5%; removed dimension on wings and labeled "varies"; added note 4 re: joint material
13	7/31/2015	10.25A	Residential Drop Curb Type I Driveway with Planting Strip (2'-6" Curb and Gutter)	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; labeled sidewalk min. 5' width; Added note re: Fire access max 10%; added note 7 re: joint material
13	7/31/2015	10.25B	Commercial Drop Curb Type II Driveway with Planting Strip (2'-6" Curb and Gutter)	Added note re: Fire access max 10%, revised notation to read 1.5% (2.00% max) instead of 1/4" per foot
13	7/31/2015	10.25C	Residential Drop Curb Type I Driveway with Planting Strip (6"x18" Vertical Curb)	Added note re: Fire access max 10%, revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; revised 1:12 slope to read 7.5% (8.33% max); removed dimension on wings and label "varies"; label sidewalk 5' min. width.; added note 7 re: joint material
13	7/31/2015	10.25D	Commercial Drop Curb Type II Driveway with Planting Strip (6"x18" Vertical Curb)	Added note re: Fire access max 10%, revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; revised 1:12 slope to read 7.5% (8.33% max); removed dimension on wings and label "varies"; label sidewalk 5' min. width.; added note 7 re: joint material
13	7/31/2015	10.25E	Modified Type II Driveway Detail with Planting Strip	Added note re: Fire access max 10%, revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; revised 1:12 slope to read 7.5% (8.33% max); removed dimension on wings and label "varies"; label sidewalk 5' min. width.; added note 7 re: joint material
13	7/31/2015	10.25F	Type IV Driveway	Show ex. sidewalk as dashed, label separation from curb taper to the sidewalk as "Varies, 1' min.", label curb depth taper as 2:1 over one foot, fix size of sidewalk panels shown, and fix plan view to match cross-section better with separation between the curb and the edge of sidewalk
13	7/31/2015	10.26	Drop Curb Driveway Monolithic Concrete Curb and Sidewalk	Change 1/4" per foot to 1.5% (2.00% max), change dimension from EP to back of sidewalk to be 6' Total Minimum, to be consistent with 10.23 Monolithic Curb and Sidewalk; added note re: Fire Access Road 10% max grade; removed dimension on flares to read "varies"
13	7/31/2015	10.27A	Residential Driveway (Type I) Valley Gutter	Added note re: Fire access max 10%, revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; Change label for the joint at back of valley gutter to be an expansion joint; label sidewalk 5' min. width; revised 1/4" per foot to read 1.5% (2.00% max)
13	7/31/2015	10.27B	Commercial Type II Driveway for 2'-0" Valley Gutter	Added note re: Fire access max 10%, revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; Change label for the joint at back of valley gutter to be an expansion joint; label sidewalk 5' min. width; revised 1/4" per foot to read 1.5% (2.00% max)
13	7/31/2015	10.28	Type III Driveway Entrance	Added callouts for expansion joints on both sides of driveway
13	7/31/2015	10.31A	Accessible Ramp Standard with Planting Strip 2'-6" Curb and Gutter (plan view)	Adjust construction joints on ACC ramps to run straight back, remove dimensions on wings, change slopes to be compliant with PROWAG/ADA consultant report; added notes 1 and 2.



13	7/31/2015	10.31B	Accessible Ramp Section with Planting Strip 2'-6" Curb and Gutter (section view)	revised sidewalk slope of 1/4" per foot to read 1.5% (2.00% max) and ramp run to be 7.5% (8.33% max); added 2" distance between truncated dome mat and back of curb.
13	7/31/2015	10.32A	Accessible Ramp Standard without Planting Strip 2'-6" Curb and Gutter (plan view)	Adjust construction joints on ACC ramps to run straight back, remove dimensions on wings, change slopes to be compliant with PROWAG/ADA consultant report; added notes 1 and 2.
13	7/31/2015	10.32B	Accessible Ramp Sections without Planting Strip 2'-6" Curb and Gutter (section view)	revised sidewalk slope of 1/4" per foot to read 1.5% (2.00% max) and ramp run to be 7.5% (8.33% max); added 2" distance between truncated dome mat and back of curb.
13	7/31/2015	10.33A	Accessible Ramp Standard 2'-0" Valley Gutter (plan view)	Adjust construction joints on ACC ramps to run straight back, remove dimensions on wings, change slopes to be compliant with PROWAG/ADA consultant report; added notes 1 and 2.
13	7/31/2015	10.33B	Accessible Ramp Sections 2'-0" Valley Gutter (section view)	revised sidewalk slope of 1/4" per foot to read 1.5% (2.00% max) and ramp run to be 7.5% (8.33% max); added 2" distance between truncated dome mat and back of curb.
13	7/31/2015	10.34A	Accessible Ramp Standard Monolithic Curb and Sidewalk	Adjust construction joints on ACC ramps to run straight back, remove dimensions on wings, change slopes to be compliant with PROWAG/ADA consultant report; added notes 1 and 2.
13	7/31/2015	10.34B	Accessible Ramp Sections Monolithic Curb and Sidewalk	revised sidewalk slope of 1/4" per foot to read 1.5% (2.00% max) and ramp run to be 7.5% (8.33% max); added 2" distance between truncated dome mat and back of curb.
13	7/31/2015	10.35A	Standard Placement of Accessible Ramp and General Notes	Show 7.5% ramp slope and 1.5% sidewalk cross slope; show note re: turning space; removed intersection diagrams since USDG includes better diagrams
13	7/31/2015	10.35B	Truncated Domes Plan and Cross-Section	label width of ramp to be covered with dome mat, width of truncated dome mat coverage must match width of sidewalk, revise notes 2, 3, 5
13	7/31/2015	10.40A	Directional Ramp (Small Radius)	Updated 12:1 slope to read 7.5% (8.33% max) slope, and cross slope to 1.5% (2.00% max); added note clarifying 2' width of dome mat in dir. of travel; changed "curb" to "gutter" in detail
13	7/31/2015	10.40B	Directional Ramp (Large Radius)	Include note re: distance between edge of truncated dome mat and the depressed curb; add note for 1.5% (2.00% max) cross-slope, added note clarifying width of dome mat in dir. of travel; changed 12:1 to 7.5% (8.33% max) slope; changed "curb" to "gutter" in detail
13	7/31/2015	11.01	Local Residential Street Typical Section	REMOVED DETAIL - Street section superseded by USDG residential street section
13	7/31/2015	11.02	Local Residential Typical Ditch Type Street Section	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; revised min width of sidewalk to be 5' instead of 4'
13	7/31/2015	11.03	Divided Residential Street Typical Section	REMOVED DETAIL - Divided street section detail not needed, will be site specific
13	7/31/2015	11.04	Local Limited Residential Street Typical Section	REMOVED DETAIL - Street section superseded by USDG residential street section
13	7/31/2015	11.05	Local Limited Residential Typical Ditch Type Street Section	REMOVED DETAIL - Limited street section no longer used.
13	7/31/2015	11.06	Residential Collector Street Typical Section	REMOVED DETAIL - Street section superseded by USDG residential wide street section
13	7/31/2015	11.07	Residential Collector Street Ditch Type Typical Section	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; revised min width of sidewalk to be 5' instead of 4'
13	7/31/2015	11.08	Limited Residential Collector Street Type Typical Section	REMOVED DETAIL - Limited street section no longer used.
13	7/31/2015	11.09	Arterial Street Typical Sections	Revised SW X-slope to read 1.5% instead of 1/4" per foot, revised to 8' min Plant strip and 6' min. sidewalk width
13	7/31/2015	11.10	City of Charlotte 45' Local Traditional Neighborhood Development Street	REMOVED DETAIL - Street section no longer used.
13	7/31/2015	11.11	Commercial Street Typical Sections	REMOVED DETAIL - Street section superseded by USDG commercial street
13	7/31/2015	11.12	Commercial Street Divided Typical Section	REMOVED DETAIL - Divided street section detail not needed, will be site specific
13	7/31/2015	11.16	City of Charlotte Residential Cul-de-sac detail	Aligned ramps perpendicular across neck of cul-de-sac
13	7/31/2015	11.18A	Residential Hammerhead Detail	Aligned ramps perpendicular across neck of hammerhead
13	7/31/2015	11.18B	Temporary Turnaround	Revised cross slope to be 1.5%; removed other dimensions particular to a certain street type
13	7/31/2015	11.21	Oversized Residential Cul-de-Sac with Raised Planter Island	Aligned ramps perpendicular across neck of cul-de-sac
13	7/31/2015	20.34	Offset Catch Basin	add reference to 840.01 from NCDOT manual to detail max pipe size
13	7/31/2015	30.02A	Skimmer Sediment Basin	Remove 1' dimension from the emergency spillway, adjust sediment cleanout depth to be labeled H/2, and ensure H is shown to the elevation of the spillway over the berm
13	7/31/2015	30.03A	Sediment Basin	Remove hatching for 3rd baffle for clarity, adjusted sed cleanout depth and H dimension to proper location; removed #5 stone layer from rock baffle
13	7/31/2015	30.15	Catch Basin Inlet Protection	adjusted note no. 6, filter bags are now allowed existing City or NCDOT roads, along with deflector note.
13	7/31/2015	40.03	Large and Small Maturing Tree Pit with Grate in Sidewalk (Plan)	add notes regarding keeping tree grates out of Pedestrian Access Route
13	7/31/2015	50.06	Street Name Sign Installation Locations	Show stop sign requirement and reference MUTCD; changed "Street Name Sign Installation" to "Street Sign" since it includes street name as well as stop sign locations.
13	7/31/2015	50.09D	Accessible On-street Parallel Parking	** NEW DETAIL ** - includes notes regarding tree planting locations, shows required items/design specs according to PROWAG/ADA
13	7/31/2015	50.10A	Accessible Parking and Signage Standards	Added notes 3 and 4; added accessible symbol on each parking space
13	7/31/2015	50.12	Emergency Vehicle Median Crossover Standards	Include note referencing standard 20.28, "Subdrain Detail" as applicable
13	7/31/2015	50.20	Inverted "U" Rack for Bicycle Parking	Added note #4 re: cane detectable and outside of PAR
13	7/31/2015	50.21	Wave Rack for Bicycle Parking	Added note #4 re: cane detectable and outside of PAR
13	7/31/2015	U-01	Local Residential Narrow Street Typical Section	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; added note re: setback measurement

13	7/31/2015	U-02	Local Residential Medium Street Typical Section	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; added note re: setback measurement
13	7/31/2015	U-03A	Local Residential Wide Street Typical Section	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; added note re: setback measurement
13	7/31/2015	U-03B	Local Residential Wide Street at Midblock with Curb Extension Typical Section	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; added note re: setback measurement
13	7/31/2015	U-03C	Local Residential Wide Street at Intersection with Curb Extension Typical Section	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; added note re: setback measurement
13	7/31/2015	U-04	Local Office/Commercial Narrow Street Typical Section	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; added note re: setback measurement
13	7/31/2015	U-05	Local Office/Commercial Wide Street Plan View	Adjusted width of detectable warning surface mats to match the width of ramps
13	7/31/2015	U-05A	Local Office/Commercial Wide Street Typical Section	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; added note re: setback measurement
13	7/31/2015	U-05B	Local Office/Commercial Wide Street at Midblock with Curb Extension Typical	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; added note re: setback measurement
13	7/31/2015	U-05C	Local Office/Commercial Wide Street at Intersection with Curb Extension Typical	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; added note re: setback measurement
13	7/31/2015	U-06	Local Industrial Street Typical Section	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; added note re: setback measurement
13	7/31/2015	U-07	Local Collector Street	Revised notation to read 1.5% (2.00% max) instead of 1/4" per foot; added note re: setback measurement
REVISION NO.	REVISION DATE	STANDARD No.	NAME	DESCRIPTION OF REVISION
14	7/29/2016	10.25E	Type II-Modified Driveway Detail With Wide Planting Strip and Standard Curb	Added Note #9 re: driveway rise 6" from gutter flow line
14	7/29/2016	10.28	Type III Driveway Entrance	Added note #7 re: 2% cross slope on crosswalk; notes and drafting updated for clarity of detail near ramps
14	7/29/2016	10.31A	Curb Ramp Standard with Planting Strip 2'-6" Curb and Gutter (plan view)	Changed name to "Perpendicular Curb Ramp"; adjusted ramp plan and section for 8' planting strip; adjusted flowline depth to avoid non-accessible slope break previously shown
14	7/29/2016	10.31B	Accessible Ramp Section with Planting Strip 2'-6" Curb and Gutter (section view)	Replaced previous detail with isometric views of perpendicular ramps
14	7/29/2016	10.32A	Accessible Ramp Standard without Planting Strip 2'-6" Curb and Gutter (plan view)	DETAIL REMOVED
14	7/29/2016	10.32B	Accessible Ramp Sections without Planting Strip 2'-6" Curb and Gutter (section view)	DETAIL REMOVED
14	7/29/2016	10.33	Accessible Ramp Standard 2'-0" Valley Gutter (plan view)	Changed name to "Perpendicular Curb Ramp", Single detail 10.33 now supercedes previous 10.33A and B; added isometric view; adjusted flow line depth to avoid non-accessible slope break previously shown
14	7/29/2016	10.33B	Accessible Ramp Sections 2'-0" Valley Gutter (section view)	DETAIL REMOVED
14	7/29/2016	10.34A	Accessible Ramp Standard Monolithic Curb and Sidewalk	DETAIL REMOVED
14	7/29/2016	10.34B	Accessible Ramp Sections Monolithic Curb and Sidewalk	DETAIL REMOVED
14	7/29/2016	10.35A	Standard Placement of Accessible Ramp and General Notes	Clarified note re: turning space for both views!; added in Slope "A" on landing space on both details; changed name to "Curb Ramp" instead of "Accessible Ramp"; Added notes 8, 9, 10; included detail showing 4x4 crosswalk clear zone; added min. curb height at corners 2"
14	7/29/2016	10.40A	Directional Accessible Ramp (Small Radius)	Changed name to "Directional Curb Ramp"; added note re: 2% landing if intersecting ramp.
14	7/29/2016	10.40B	Directional Accessible Ramp (Large Radius)	Changed name to "Directional Curb Ramp"; added note re: 2% landing if intersecting ramp.
14	7/29/2016	10.41A	Pedestrian Refuge With 1'-0" Curb and Gutter	New Detail
14	7/29/2016	10.41B	Pedestrian Refuge With Vertical Curb	New Detail
14	7/29/2016	10.41C	Pedestrian Refuge With Modified Monolithic Curb	New Detail
14	7/29/2016	Text Pg. 9, 10	Section F. "Sidewalks, Curb Ramps, and Driveways"	Changed section name to include "curb ramps,;" Included PROWAG statement as F.1; adjusted various notes to meet PROWAG.

# Charlotte Land Development Standards Manual

City of Charlotte (Including ETJ) Land Development

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## F. SIDEWALKS, RAMPS, AND DRIVEWAYS

1. Where sidewalks and pedestrian routes within street crossings (including marked and unmarked crosswalks) are provided, they must be constructed so they are accessible to all potential users, including those with disabilities.

The July 26, 2011 “Proposed Accessibility Guidelines for Pedestrian Facilities in the Public Right-of-Way” was written by the US Access Board and is also known as the Public Right-of-Way Accessibility Guidelines or PROWAG. PROWAG provides more specific information than the existing Americans with disabilities Act Accessibilities Guidelines (ADAAG) for transportation facilities within the right-of-way including pedestrian access routes, signals, and parking facilities. The PROWAG requirements are currently in the development and adoption process and have not been officially adopted by the Department of Justice; however, the Federal Highway Administration has issued guidance that the draft version of the PROWAG “are currently recommended best practices, and can be considered the state of the practice that could be followed for areas not fully addressed” in the existing ADAAG requirements.

Due to the widespread acceptance of the PROWAG, and their pending adoption in the future, the standards in this manual are based upon the PROWAG requirements. The designer is encouraged to reference the complete PROWAG document for additional information ([www.accessboard.gov](http://www.accessboard.gov)). Buildings and other structures not covered by PROWAG must comply with the applicable requirements of the ADAAG.

2. Sidewalks shall be constructed of not less than 3600 P.S.I. concrete and shall be four (4) inches thick, constructed on an adequately graded base, except where a sidewalk crosses a driveway it shall be six (6) inches thick. Subgrade shall be compacted to 95% of the maximum density obtainable with the Standard Proctor Test. The surface of the sidewalk shall be steel trowel and light broom finished and cured with an acceptable curing compound. Tooled joints shall be provided at intervals of not less than five (5) feet and expansion joints at intervals of not more than forty-five (45) feet. The sidewalk shall have a desired lateral slope of 1.5% (2.00% maximum).

EXAMPLE SIDEWALK CONSTRUCTION DIMENSIONS:		
<u>WIDTH</u>	<u>RISE</u>	<u>CROSS-SLOPE</u>
4'	¾"	1.56%
5'	1"	1.67%
6'	1-1/8"	1.56%
8'	1-½"	1.56%

3. Planting strip adjacent to sidewalk shall be graded to ¼ inch per foot (min.) up to 1 ¼ inch per foot (max.), except where excessive natural grades make this requirement impractical. In such cases, the City Engineer may authorize a suitable grade.
4. Sidewalk widths shall be a minimum of five (5) feet unless otherwise specified. Where necessary, a 5' x 5' sidewalk is required at least every 200' as required by PROWAG for a passing zone unless otherwise provided by residential driveways, intersecting sidewalk, etc.
5. Approval of sidewalk construction plans must be obtained as part of the plan review process. Except in unusual circumstances, sidewalk must be located a minimum of (8) eight feet from the back of the curb or at the back of the right-of-way. A recorded public sidewalk easement is required for all sidewalk located outside public right-of-way; the width shall be equal to the distance from the right-of-way line to the back of the sidewalk plus two feet or to the face of building, whichever is less. The sidewalk easement must be recorded with the Mecklenburg County Register of Deeds prior to issuance of a certificate of occupancy for the corresponding building(s).

6. Running slope of all ramps shall be up to 7.5% (8.33% maximum). Ramp length is not required to exceed 15' regardless of the resulting slope, which shall be uniform for the length of the ramp.. Curb ramps are required where sidewalks intersect curbing at any street intersection and at Type III driveway connections.
7. For City projects only: On CLDS# 10.24A/B/C, 10.25(A/B/C/D only), and 10.27A/B, the curb and gutter across the front of the driveway shall be measured and paid for separately under Curb and Gutter (either 2'-0" valley gutter, vertical curb, or standard 2'-6" curb and gutter as specified on the details). The curb and gutter is to be measured per linear foot along the surface of the top of the curb. The concrete driveway apron is to be measured per square yard.
8. Refer to the WATCH Manual, MUTCD (latest edition), and the Proposed Guidelines for Pedestrian Facilities in the Public Right-of-Way (PROWAG) for construction zone pedestrian routes and signalization and controls for actuators. Curb ramps shall be designed and constructed in accordance with the American Disability Act.
9. Where pedestrian routes are contained within a street or right-of-way, the grade of pedestrian access routes shall not exceed the general grade established for the adjacent street or highway.

## II. STORM DRAINAGE

### A. GENERAL NOTES

1. All work and materials shall conform to the latest edition of the NCDOT Standard Specifications *unless otherwise specified in this manual*. ALL concrete used for drainage structures shall have a minimum compressive strength of 3600 PSI at 28 days. This requirement shall be provided regardless of any lesser compressive strength specified in the North Carolina Department of Transportation Standard Specifications for Roads and Structures.
2. Reinforced concrete pipe may be used in all storm drain applications. High Density Polyethylene Pipe (HDPE) may be substituted for pipe diameters of 48 inches or less. Culverts 60 inches in diameter or greater may be Corrugated Aluminized Metal Pipe (CAMP) or aluminum with a minimum 14 gauge metal.
3. All pipe shall be laid with the bell or groove up grade and the joint entirely interlocking.
4. The minimum cover for all pipes is two (2) feet measured from the final surface. Special applications for less than two (2) feet of cover will be reviewed and approved by the City Engineer individually. The maximum cover for storm drainage pipes shall at a minimum comply with the requirements of the North Carolina Department of Transportation Highway Design Branch Roadway Design Manual, Part I, Section 5, and "Drainage Design". Storm pipe design that exceeds these criteria may be approved at the discretion of the City Engineer.
5. All pipes in storm drain structures shall be flush with the inside wall.
6. All storm drain structures over three (3) feet and six (6) inches in height must have steps in accordance with standard details set forth in this manual.
7. The interior surfaces of all storm drainage structures shall be pointed up and smoothed to an acceptable standard using mortar mixed to manufacturer's specifications.
8. Storm drainage piping shall be placed in a straight alignment at uniform grade. No changes in alignment shall be allowed except at catch basins, manholes, or other junctions that provide appropriate clean out access. The maximum length between access points is 300 linear feet.
9. All frames, grates, rings, covers, etc., must conform to the standards set forth in this manual.
10. All graded creek banks and slopes shall be at a maximum of two (2) feet horizontal to one (1) foot vertical (2:1) and not to exceed 10' without terracing or the slopes shall be designed by a Professional Geotechnical Engineer and approved by the City Engineer on a case by case basis.

### B. HIGH DENSITY POLYETHYLENE PIPE (HDPE)

1. The Product used shall be corrugated exterior/smooth interior pipe (Type S), conforming to the requirements of AASHTO Specification M294 (latest edition) for Corrugated Polyethylene Pipe.

2. Bell and spigot joints shall be required on all pipes inside the right-of-way. Bells shall cover at least two full corrugations on each section of pipe. The bell and spigot joint shall have an "O" ring rubber gasket meeting ASTM F477 with the gasket factory installed, placed on the spigot end of the pipe. Pipe joints shall meet all requirements of AASHTO M294.
3. All HDPE pipe installed must be inspected and approved by the City's Inspector prior to any backfill being placed. The City inspector must be present during the backfilling operation as well.
4. Backfill material used to install HDPE pipe within the street right-of-way shall be Select Material, Class II-IV, as defined by Section 1016-3 of the North Carolina Department of Transportation Standard Specifications for Roads and Structures. Upon submittal of written certification of material suitability by a licensed geotechnical engineer, NCDOT Class I Select Material may be used. All backfill material shall be approved by the City inspector prior to placement of the material within the street right-of-way.
5. The minimum length of HDPE pipe permitted for use shall be four (4) feet. HDPE flared end sections are not allowed.
6. All HDPE pipe installed shall be third party certified and shall bear the Plastic Pipe Institute's (PPI) certificate sticker.

C. REINFORCED CONCRETE.

1. All concrete shall be at least 3600 PSI. Prior approval shall be obtained in order to use pre-cast storm drainage structures in any street right-of-way by City Engineer.
2. Concrete pipe used within the street right-of-way shall be a minimum of Class III Reinforced Concrete Pipe, with a minimum diameter of fifteen (15) inches (eighteen (18) inches minimum on cross drain culverts within the ETJ). Installation of Class IV or higher concrete pipe shall be identified on the As-Built Plan and the City inspector shall be given documentation and notification of this information prior to construction.
3. Concrete mortar joints shall be used for joining all concrete pipes. The pipe shall be clean and moist when mortar is applied. The lower portions of the bell or groove shall be filled with mortar sufficient to bring the inner surface flush and even when the next joint is fitted into place. The remainder of the joint shall then be filled with mortar and a bead or ring of mortar formed around the outside of the joint. The application of mortar may be delayed until fill is completed when the pipe is larger than thirty (30) inches.
4. Performed joint sealer, which conforms to AASHTO specification M-198 for Type B flexible plastic gaskets, may be used in lieu of the mortar joining method.

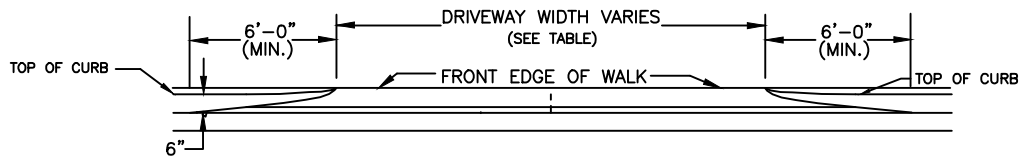
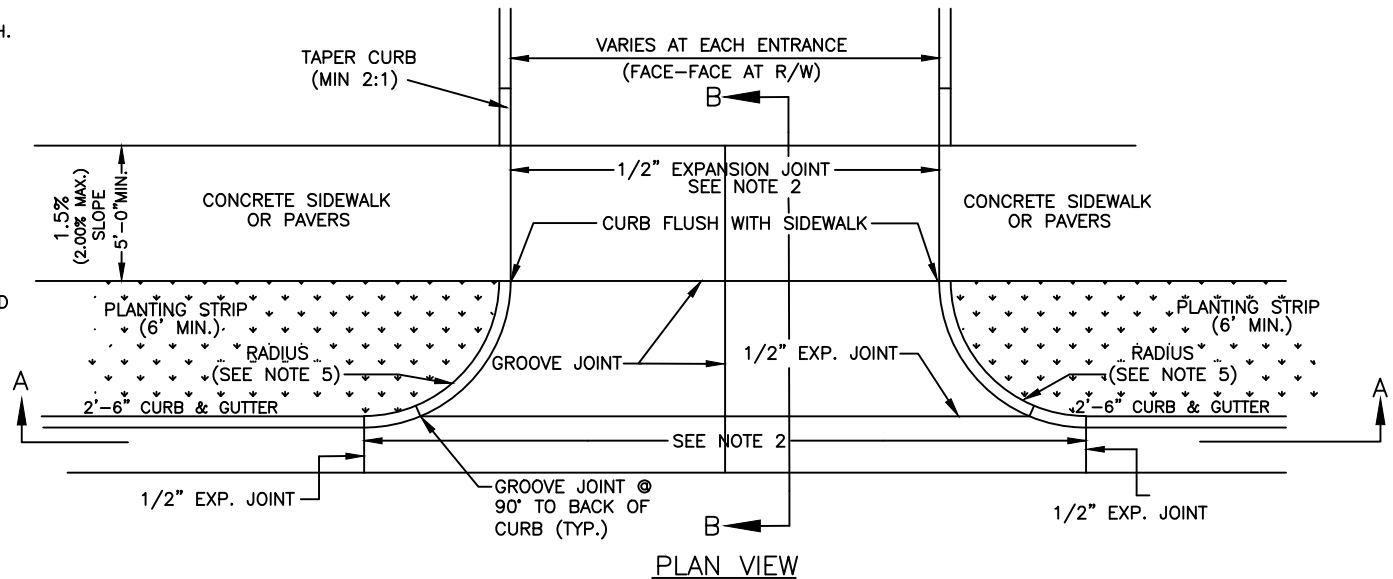
D. INSTALLATION OF REINFORCED CONCRETE AND CORRUGATED METAL PIPE.

1. All backfill shall be non-plastic in nature, free from roots, vegetative matter, waste, construction material or other objectionable material. Said material shall be capable of being compacted by mechanical means and shall have no tendency to flow or behave in a plastic manner under the tamping blows or proof rolling.
2. Materials deemed by the Engineer as unsuitable for backfill purposes shall be removed and replaced with select backfill material.
3. Backfilling of trenches shall be accomplished immediately after the pipe is laid. The fill around the pipe shall be placed in layers not to exceed eight (8) inches, each layer shall be thoroughly compacted to 95% of the maximum density obtainable with the Standard Proctor Test (a density of 100% Standard Proctor is required for the top eight (8) inches).
4. Compaction requirements shall be attained by the use of mechanical compaction methods. Each layer of backfill shall be placed loose and thoroughly compacted in place.
5. Under no circumstances shall water be permitted to rise in un-backfilled trenches after the pipe has been placed.

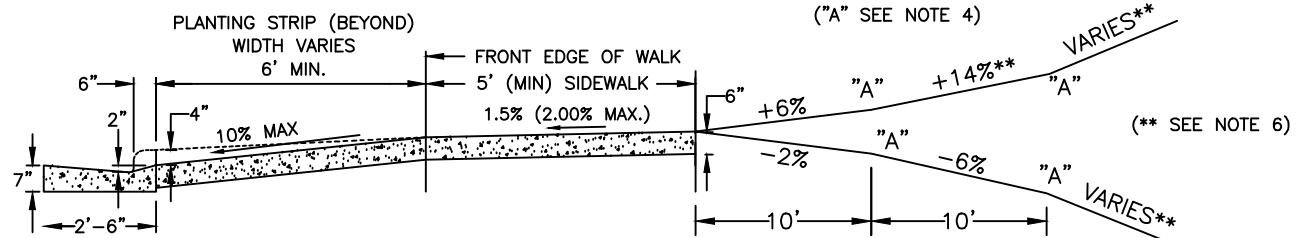


# NOTES:

1. ALL CONCRETE TO BE 3600 P.S.I. COMPRESSIVE STRENGTH.
2. AT ALL DRIVEWAYS, SIDEWALKS TO BE REMOVED TO THE NEAREST JOINT BEYOND NEW CONSTRUCTION OR CUT WITH A SAW AND REMOVED. SAW CUT OR JOINT TO BE PERPENDICULAR TO EDGE OF EXISTING PAVEMENT. SEE STD. NO. 10.17 FOR JOINT DETAIL. PAY LIMITS FOR WORK DONE UNDER CITY OF CHARLOTTE CONTRACTS ARE FROM EXPANSION JOINT TO EXPANSION JOINT, FROM LIP OF CURB TO BACK OF SIDEWALK.
3. ALL DRIVEWAYS MUST MEET THE CURRENT CITY DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCE, AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
4. ALGEBRAIC DIFFERENCE IN GRADE ("A") BETWEEN SLOPES SHALL BE 8% OR LESS.
5. RADII MUST BE MINIMUM 6 FEET OR THE WIDTH OF THE PLANTING STRIP, WHICHEVER IS GREATER. RADII GREATER THAN THESE MINIMUMS MAY BE REQUIRED BY CDOT ON A CASE-BY-CASE BASIS. FOR RADII GREATER THAN 6 FEET, THE RADII ARE TO CONTINUE AS A BAND AT-GRADE THROUGH THE SIDEWALK.
6. PER NC IFC SECTION D103.2, FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 10 PERCENT IN GRADE.
7. PAVERS USED IN DRIVEWAY MUST HAVE A THICKNESS OF 3 INCHES.
8. JOINT MATERIAL SHOULD BE PLACED FLUSH WITH CONCRETE.
9. THE DRIVEWAY MUST RISE 6" FROM THE GUTTER LINE TO PREVENT RUNOFF FROM ENTERING DRIVEWAY.



SECTION A-A (ALONG FLOW LINE)



SECTION B-B

NOT TO SCALE

DRIVEWAY DIMENSIONS		
OPERATION/RADIUS	MINIMUM	MAXIMUM
ONE-WAY WITH 6-12 FT. RADII	20'	30'
ONE-WAY WITH 13+ FT. RADII	15'	25'
TWO-WAY WITH 6-12 FT. RADII	26'	50'
TWO-WAY WITH 13+ FT. RADII	22'	40'



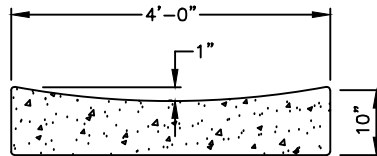
CITY OF CHARLOTTE  
LAND DEVELOPMENT STANDARDS  
INCLUDES CHARLOTTE ETJ

TYPE II-MODIFIED DRIVEWAY DETAIL WITH  
WIDE PLANTING STRIP AND STANDARD CURB

STD. NO.	REV.
10.25E	14

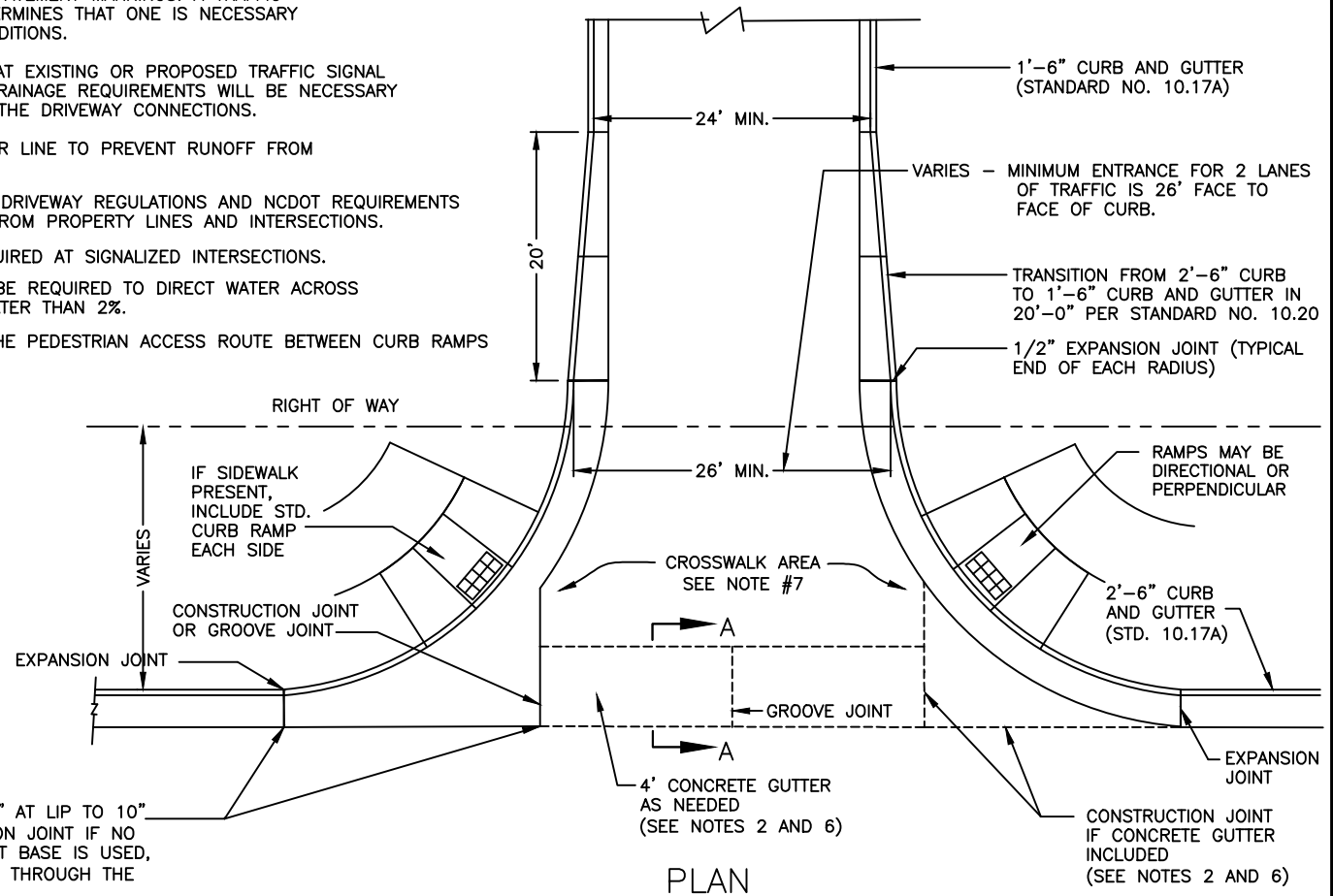
## NOTES:

1. WHERE A TYPE III DRIVEWAY IS APPROVED BY THE CHARLOTTE DEPARTMENT OF TRANSPORTATION (CDOT) THAT CONNECTS TO AN EXISTING SIGNALIZED INTERSECTION, OR AT A LOCATION WHERE A TRAFFIC SIGNAL INSTALLATION IS PROPOSED BY CDOT BASED ON A TRAFFIC IMPACT/SIGNAL WARRANT STUDY, A FULL DEPTH ASPHALT PAVEMENT (2-1/2" S-9.5 B/C AND 6" B-25.0 B/C) IS REQUIRED. THIS PAVEMENT DESIGN IS REQUIRED IN THE DRIVEWAY EASEMENT (100-FOOT MINIMUM) TO MAINTAIN DETECTOR LOOPS AND PAVEMENT MARKINGS. A TRAFFIC SIGNAL WILL BE INSTALLED ONLY IF CDOT DETERMINES THAT ONE IS NECESSARY BASED ON A TRAFFIC STUDY OF CURRENT CONDITIONS.
2. A CONCRETE GUTTER IS TO BE USED EXCEPT AT EXISTING OR PROPOSED TRAFFIC SIGNAL LOCATIONS. AT THESE LOCATIONS ADDITIONAL DRAINAGE REQUIREMENTS WILL BE NECESSARY TO ELIMINATE THE NEED FOR GUTTER ACROSS THE DRIVEWAY CONNECTIONS.
3. THE DRIVEWAY MUST RISE 6" FROM THE GUTTER LINE TO PREVENT RUNOFF FROM ENTERING DRIVEWAY.
4. ALL DRIVEWAYS MUST MEET THE CURRENT CITY DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS FOR SPACING, SIGHT DISTANCE, AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
5. TWO (2) CURB RAMP PER CURB RETURN REQUIRED AT SIGNALIZED INTERSECTIONS.
6. FOUR (4) FOOT GUTTER AND WINGS WILL NOT BE REQUIRED TO DIRECT WATER ACROSS DRIVE IF THE DRIVEWAY GUTTER SLOPE IS GREATER THAN 2%.
7. MAINTAIN 1.5% (MAX. 2%) CROSS-SLOPE ON THE PEDESTRIAN ACCESS ROUTE BETWEEN CURB RAMPS



SECTION A-A

TRANSITION CONCRETE DEPTH FROM 7" AT LIP TO 10" AT 4' CONCRETE GUTTER CONSTRUCTION JOINT IF NO ASPHALT BASE INSTALLED. IF ASPHALT BASE IS USED, 7" CONCRETE DEPTH CAN BE CARRIED THROUGH THE 4' CONCRETE GUTTER.



PLAN

NOT TO SCALE



CITY OF CHARLOTTE  
LAND DEVELOPMENT STANDARDS  
INCLUDES CHARLOTTE ETJ

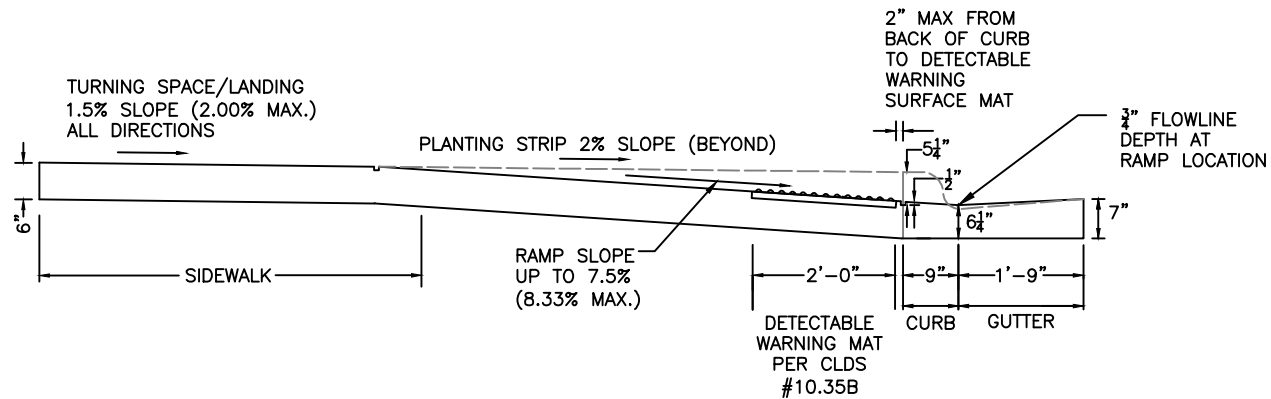
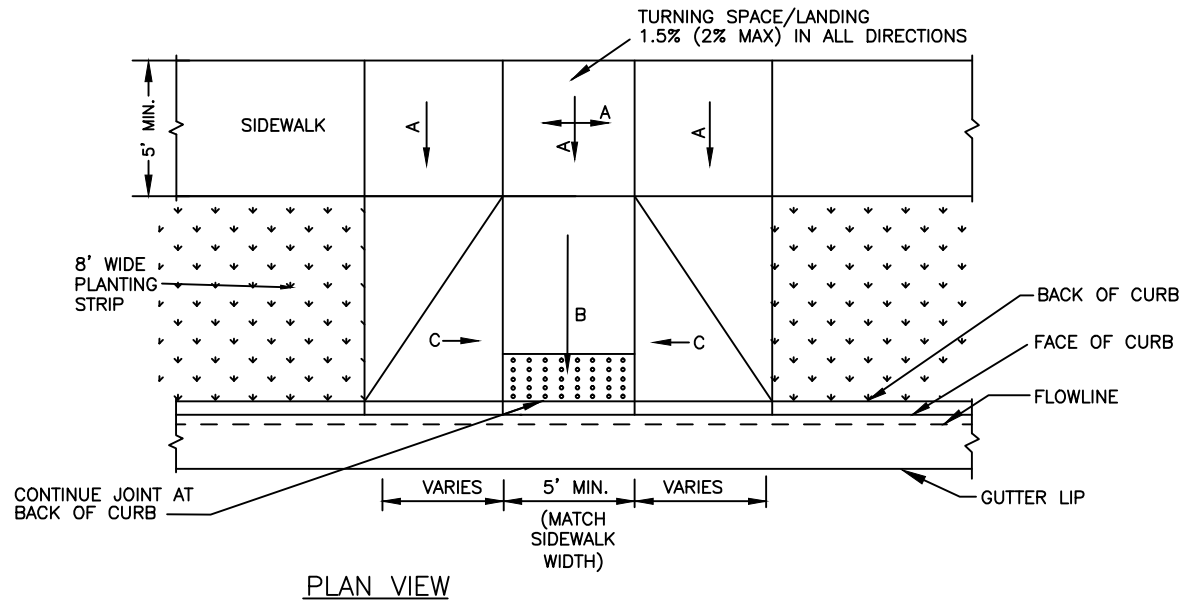
## TYPE III DRIVEWAY ENTRANCE

STD. NO.	REV.
10.28	14

**NOTES:**

1. ENSURE FLUSH CONDITIONS AT CURB RAMP TO GUTTER TRANSITION.
2. TYPICALLY, THE SIDEWALK RUNNING SLOPE SHALL NOT EXCEED THE GENERAL GRADE ESTABLISHED FOR THE ADJACENT STREET.

SLOPE "A" 1.5% (2.00% MAX)
SLOPE "B" 7.5% (8.33% MAX)
SLOPE "C" 10% MAX



NOT TO SCALE



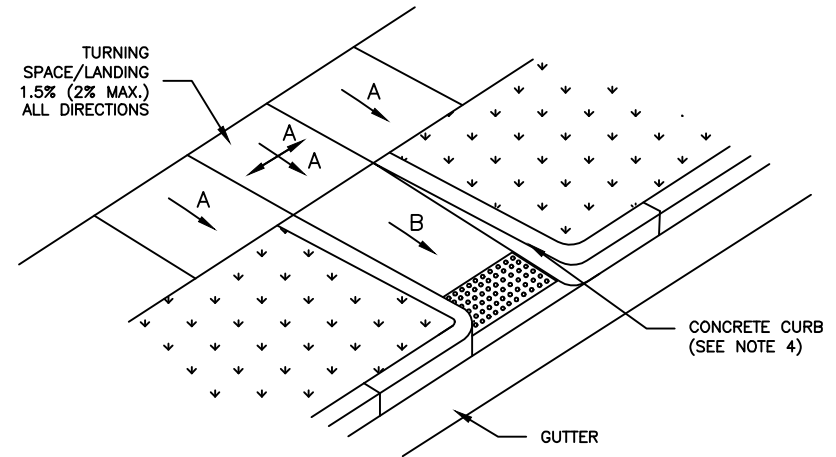
CITY OF CHARLOTTE  
LAND DEVELOPMENT STANDARDS  
INCLUDES CHARLOTTE ETJ

PERPENDICULAR CURB RAMP  
WITH 2'-6" CURB AND GUTTER

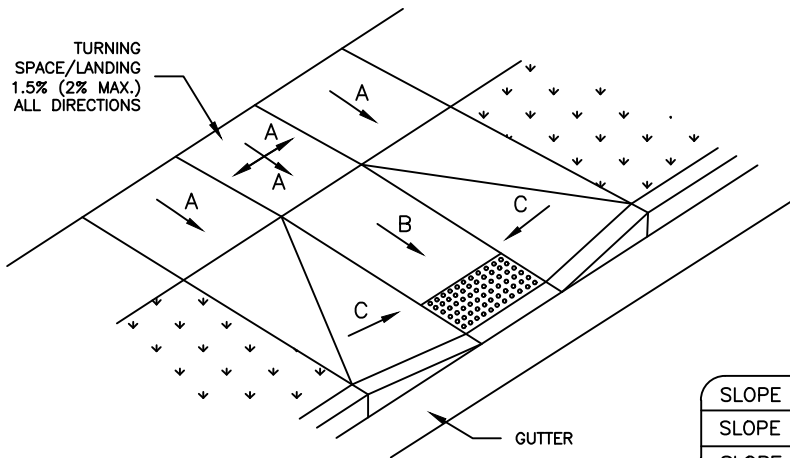
STD. NO.	REV.
10.31A	14

NOTES:

1. THIS DETAIL PRESENTS ALTERNATIVE TREATMENTS FOR THE SIDES OF THE RAMP – RETURNED CURBS, RECTANGULAR WINGS, AND ANGLED WINGS.
2. ENSURE FLUSH CONDITIONS AT CURB RAMP TO GUTTER TRANSITION.
3. TYPICALLY, THE SIDEWALK RUNNING SLOPE SHALL NOT EXCEED THE GENERAL GRADE ESTABLISHED FOR THE ADJACENT STREET.
4. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT TYPICALLY WALK ACROSS THE RAMP, THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE, OR THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED.

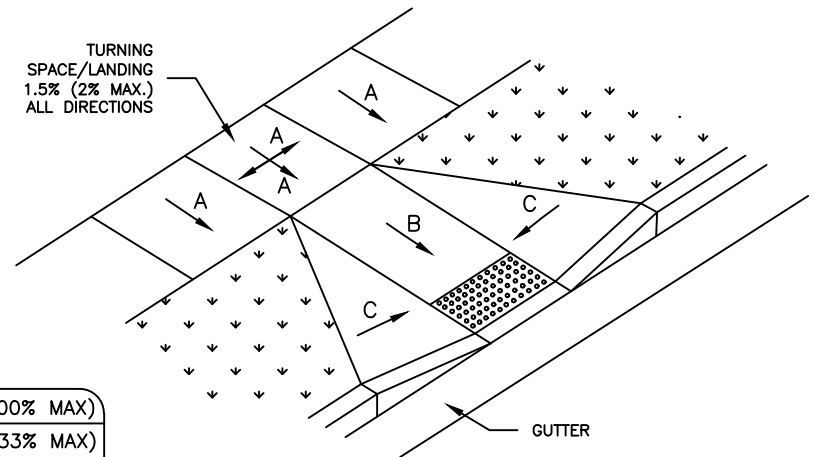


RETURNED CURBS  
(SEE NOTE 4)



RECTANGULAR WINGS

SLOPE "A" 1.5% (2.00% MAX)
SLOPE "B" 7.5% (8.33% MAX)
SLOPE "C" 10% MAX



ANGLED WINGS

NOT TO SCALE



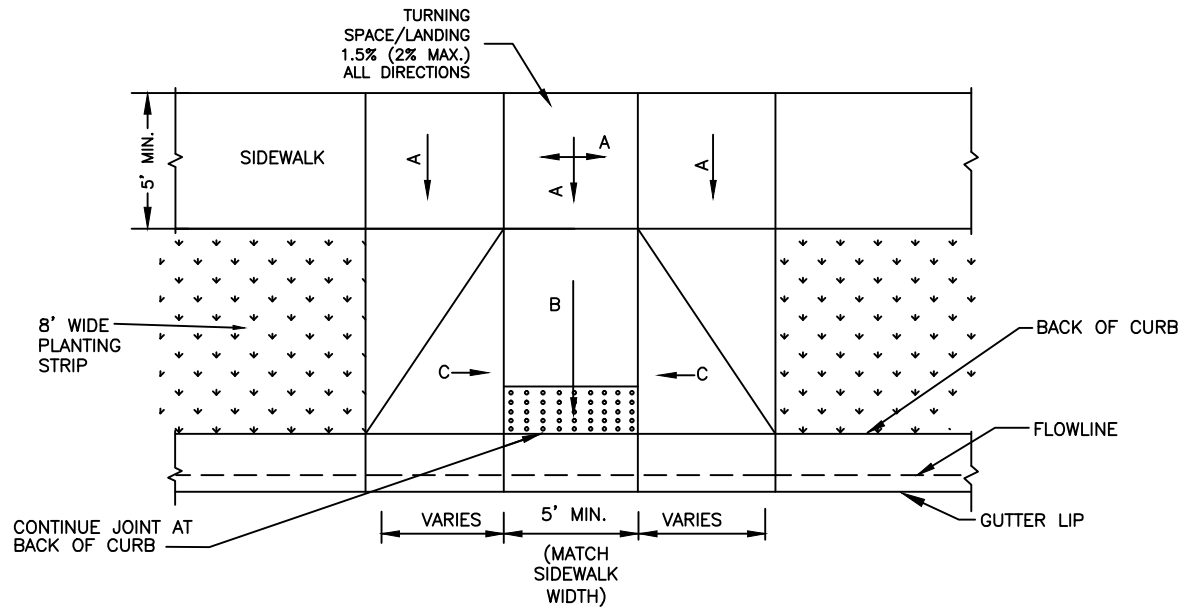
CITY OF CHARLOTTE  
LAND DEVELOPMENT STANDARDS  
INCLUDES CHARLOTTE ETJ

PERPENDICULAR CURB RAMP WITH  
2'-6" CURB AND GUTTER

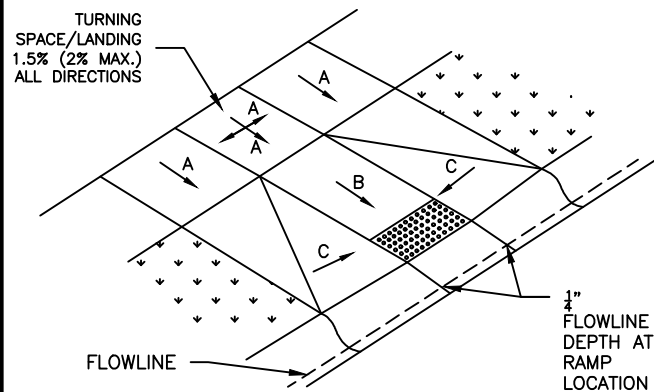
STD. NO.	REV.
10.31B	14

1. ENSURE FLUSH CONDITIONS AT CURB RAMP TO GUTTER TRANSITION.
2. TYPICALLY, THE SIDEWALK RUNNING SLOPE SHALL NOT EXCEED THE GENERAL GRADE ESTABLISHED FOR THE ADJACENT STREET.
3. MAINTAIN POSITIVE DRAINAGE ALONG THE LIP OF GUTTER IN RAMP. IN FLAT AREAS, ADDITIONAL CATCH BASINS MAY BE REQUIRED ON THE SIDES OF THE RAMP TO MINIMIZE STANDING WATER AT THE RAMP LOCATION.

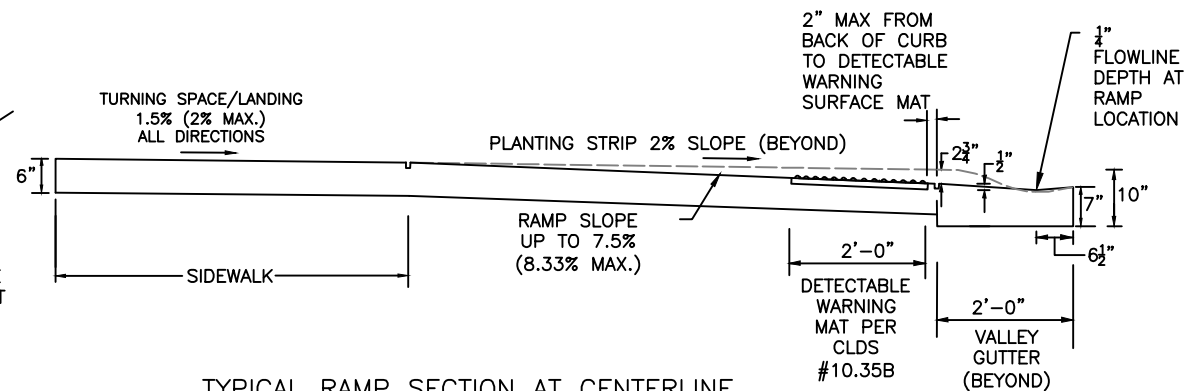
SLOPE "A" 1.5% (2.00% MAX)
SLOPE "B" 7.5% (8.33% MAX)
SLOPE "C" 10% MAX



PLAN VIEW



ISOMETRIC VIEW



TYPICAL RAMP SECTION AT CENTERLINE

NOT TO SCALE



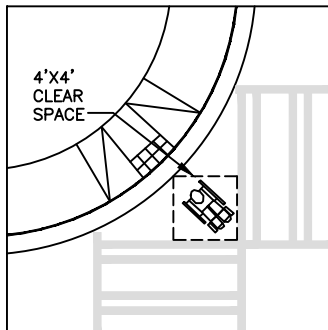
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LAND DEVELOPMENT STANDARDS  
INCLUDES CHARLOTTE ETJ

PERPENDICULAR CURB RAMP  
WITH 2'-0" VALLEY GUTTER

STD. NO.	REV.
10.33	14

## NOTES:

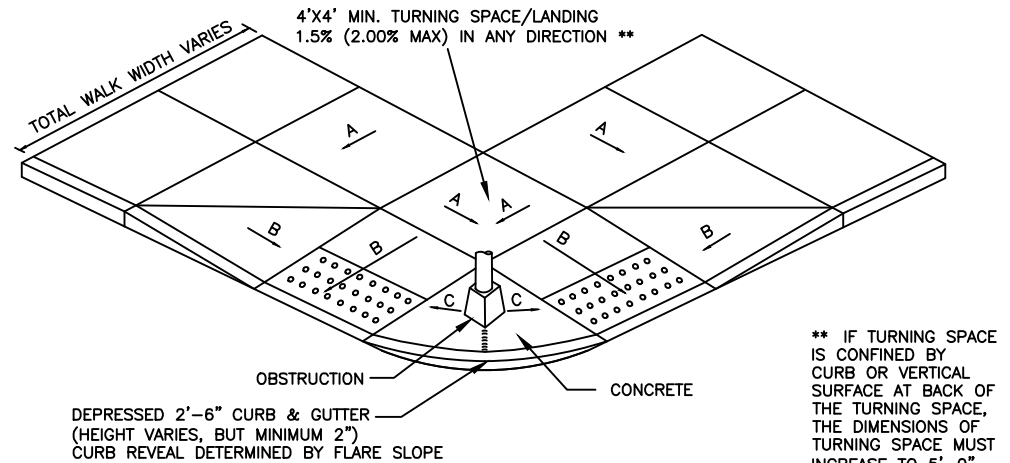
1. MAINTAIN A MINIMUM OF 0.5% SLOPE ON ALL CONCRETE SURFACES TO PROMOTE SURFACE DRAINAGE TOWARD CURB.
2. GUTTER FLOW LINE AND PLAN PROFILE SHALL BE MAINTAINED THROUGH THE RAMP AREA.
3. THE SURFACE OF THE RAMP SHALL BE FLUSH WITH THE FLOWLINE OF THE CURB AND GUTTER.
4. THE WING AND RAMP SURFACES SHALL BE 3600 PSI CONCRETE WITH A SIDEWALK FINISH IN ACCORDANCE WITH CURRENT EDITION NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
5. DRAINAGE STRUCTURES, MAST ARMS, LIGHT POLES AND OTHER OBSTRUCTIONS SHALL NOT BE PLACED IN LINE WITH RAMPS. LOCATION OF THE RAMP SHALL TAKE PRECEDENCE OVER LOCATION OF OBSTRUCTIONS EXCEPT WHERE EXISTING OBSTRUCTIONS ARE BEING UTILIZED IN THE NEW CONSTRUCTION.
6. SEE STANDARD DRAWING 10.35B FOR DETECTABLE WARNING INSTALLATION.
7. SEE USDG INTERSECTION DIAGRAMS I-1 THROUGH I-3 FOR TYPICAL RAMP PLACEMENT AND INTERSECTION LAYOUTS.
8. CURB RAMPS SHALL HAVE A SEGMENT OF STRAIGHT CURB AT LEAST 24 INCHES LONG LOCATED ON EACH SIDE OF THE WING SLOPE AND WITHIN THE CROSSWALK MARKINGS.
9. FOR ALL RAMPS AT MARKED CROSSWALKS THE RAMP OPENING (AT THE FULLY DEPRESSED CURB) SHALL BE LOCATED WITHIN THE PARALLEL BOUNDARIES OF CROSSWALK MARKINGS.
10. IF A SINGLE DIAGONAL RAMP ON A CORNER IS USED (TYP. ONLY IN RETROFITS), THE RAMP CENTERLINE SHALL BE LOCATED AT THE CORNER RADIUS CENTERLINE UNLESS OTHERWISE DIRECTED BY THE ENGINEER. A MIN. 4'X4' CLEAR SPACE BEYOND THE CURB FACE MUST BE WHOLLY OUTSIDE OF THE VEHICLE TRAVEL LANE (SEE DIAGRAM BELOW)



SLOPE "A" 1.5% (2.00% MAX)

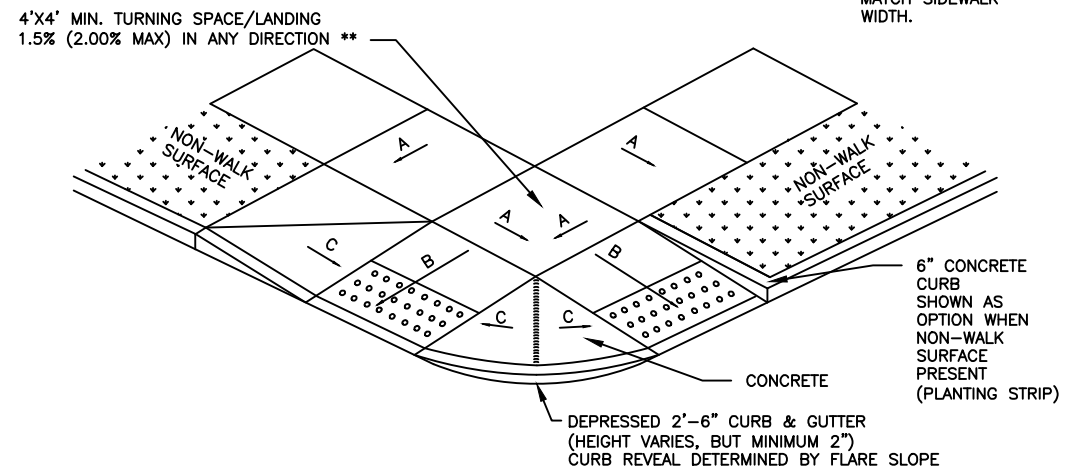
SLOPE "B" 7.5% (8.33% MAX)

SLOPE "C" 10% MAX



PLACEMENT FOR OBSTRUCTED CORNER RADIUS

\*\* IF TURNING SPACE IS CONFINED BY CURB OR VERTICAL SURFACE AT BACK OF THE TURNING SPACE, THE DIMENSIONS OF TURNING SPACE MUST INCREASE TO 5'-0" MINIMUM. TYPICALLY, TURNING SPACE DIMENSIONS AND RAMP WIDTH WILL MATCH SIDEWALK WIDTH.



PLACEMENT FOR SMALL CORNER RADIUS

NOT TO SCALE

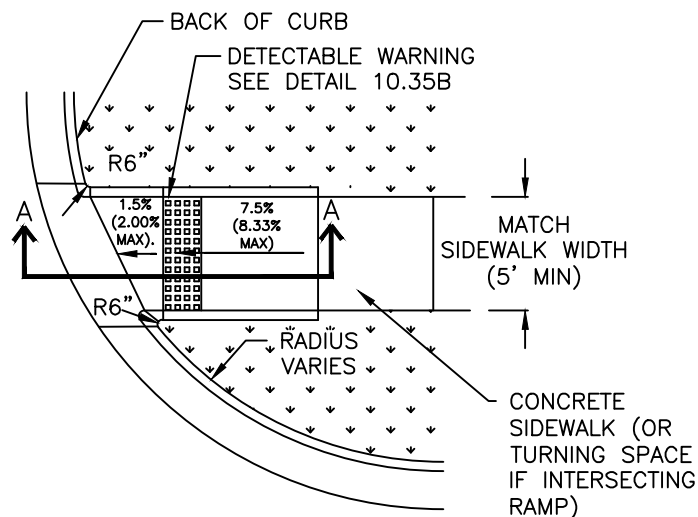


CITY OF CHARLOTTE  
LAND DEVELOPMENT STANDARDS

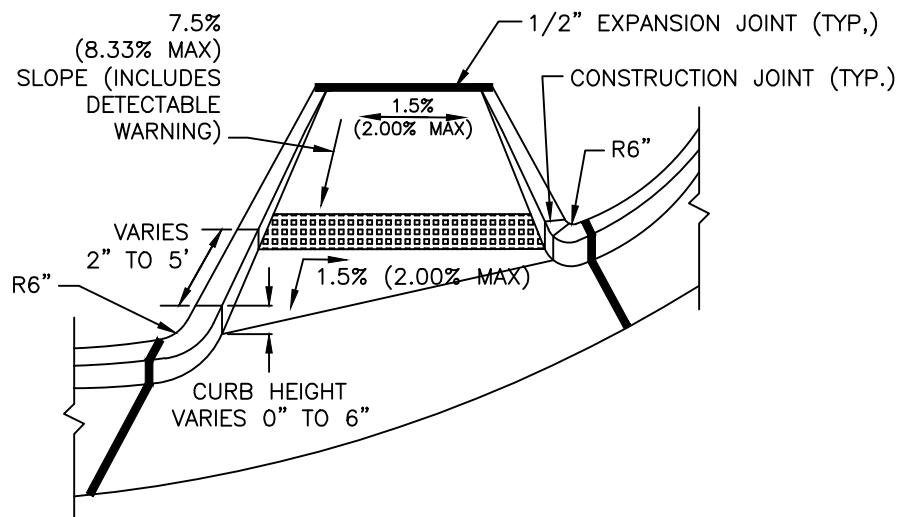
INCLUDES CHARLOTTE ETJ

## STANDARD PLACEMENT OF CURB RAMP AND GENERAL NOTES

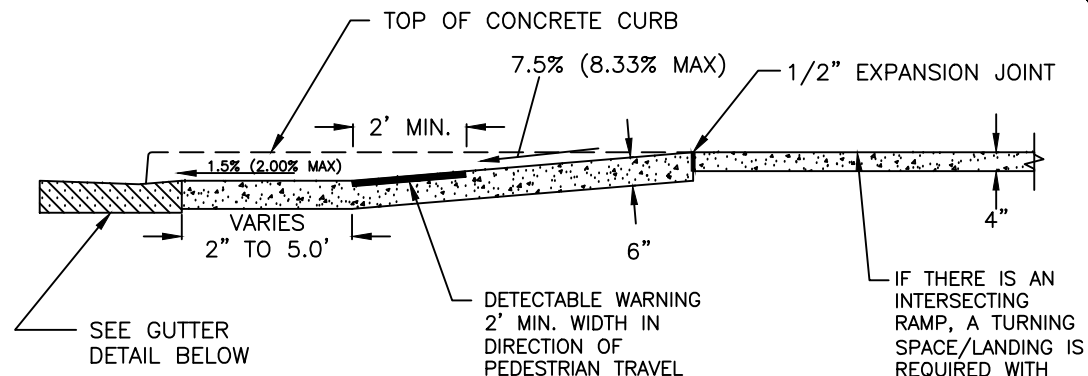
STD. NO.	REV.
10.35A	14



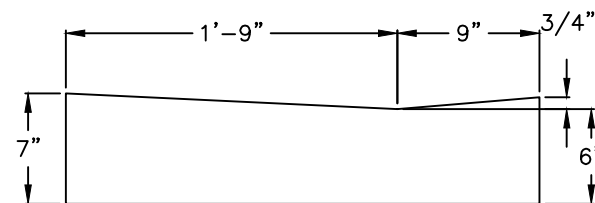
PLAN



PERSPECTIVE



SECTION A-A



GUTTER DETAIL

NOTES:

- USE THIS DETAIL ONLY UNDER THE FOLLOWING CIRCUMSTANCES:
  - 5-FOOT SIDEWALKS WITH CURB RADII OF 35 FEET OR LESS
  - 6-FOOT SIDEWALKS WITH CURB RADII OF 30 FEET OR LESS
  - 8-FOOT SIDEWALKS WITH CURB RADII OF 25 FEET OR LESS
- DIRECTIONAL RAMPS MAY BE USED WHEN AN 8-FOOT PLANTING STRIP IS PROVIDED. DO NOT USE THIS DETAIL IF THERE IS HARDSCAPE INSTEAD OF A PLANTING STRIP.
- ALL CONCRETE SHALL BE AT LEAST 3600 PSI.
- ENSURE FLUSH CONDITIONS AT RAMP TO GUTTER TRANSITION.

THIS DETAIL IS NOT FOR USE IN ETJ, OR ON NCDOT-MAINTAINED STREETS.

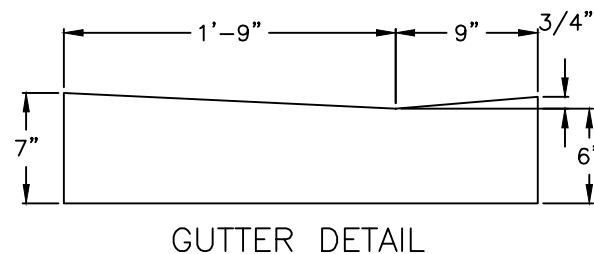
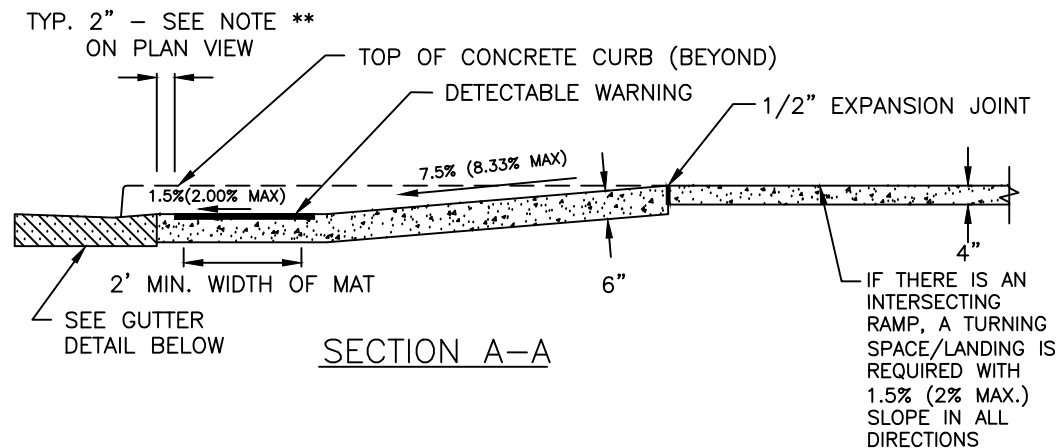
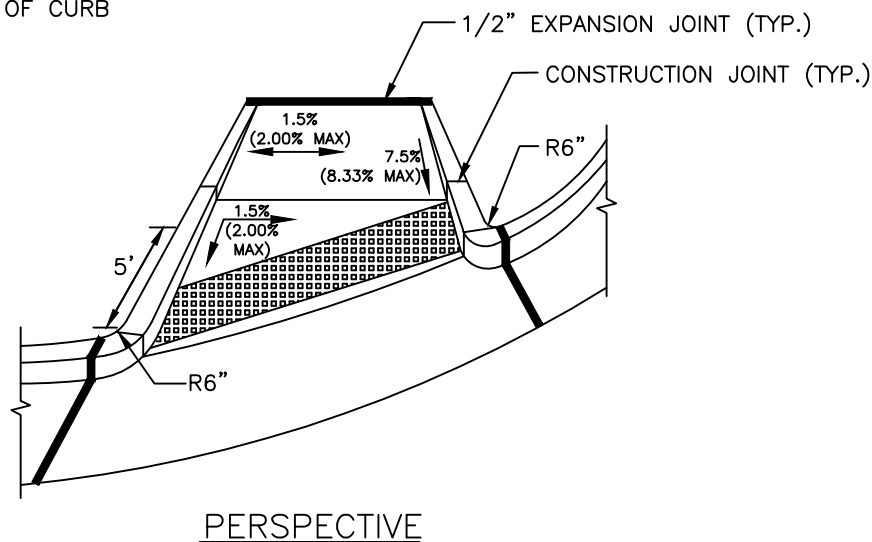
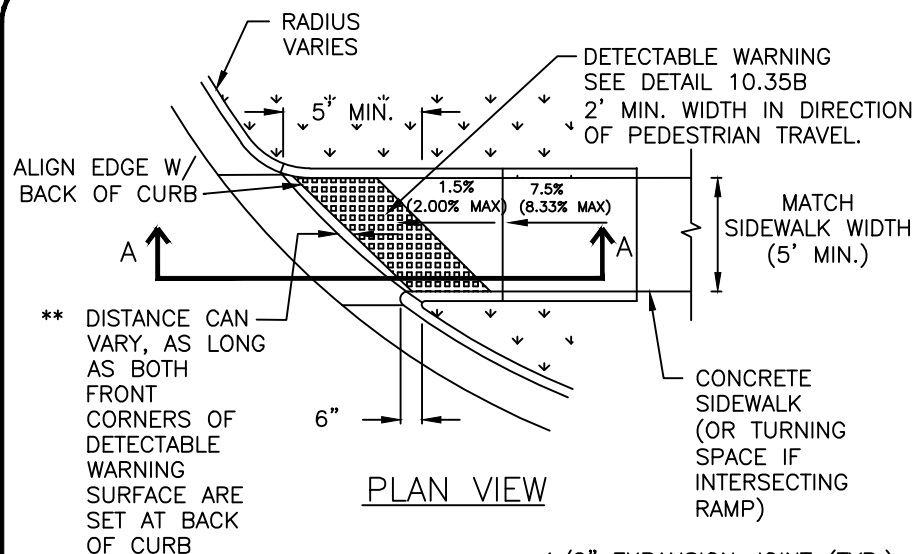
NOT TO SCALE



CITY OF CHARLOTTE  
LAND DEVELOPMENT STANDARDS

# DIRECTIONAL CURB RAMP WITH SMALL/MEDIUM CURB RADII

STD. NO.	REV.
10.40A	14



#### NOTES:

- USE THIS DETAIL ONLY UNDER THE FOLLOWING CIRCUMSTANCES:
  - 5-FOOT SIDEWALKS WITH CURB RADII GREATER THAN 35 FEET
  - 6-FOOT SIDEWALKS WITH CURB RADII GREATER THAN 30 FEET
  - 8-FOOT SIDEWALKS WITH CURB RADII GREATER THAN 25 FEET
- DIRECTIONAL RAMPS MAY BE USED WHEN A MIN. 8-FOOT PLANTING STRIP IS PROVIDED. DO NOT USE THIS DETAIL IF THERE IS HARDSCAPE INSTEAD OF A PLANTING STRIP.
- ALL CONCRETE SHALL BE AT LEAST 3600 PSI.
- ENSURE FLUSH CONDITIONS AT CURB RAMP TO GUTTER TRANSITION.

THIS DETAIL IS NOT FOR USE IN ETJ, OR ON NCDOT-MAINTAINED STREETS.

NOT TO SCALE



CITY OF CHARLOTTE  
LAND DEVELOPMENT STANDARDS

## DIRECTIONAL CURB RAMP WITH LARGE CURB RADIUS

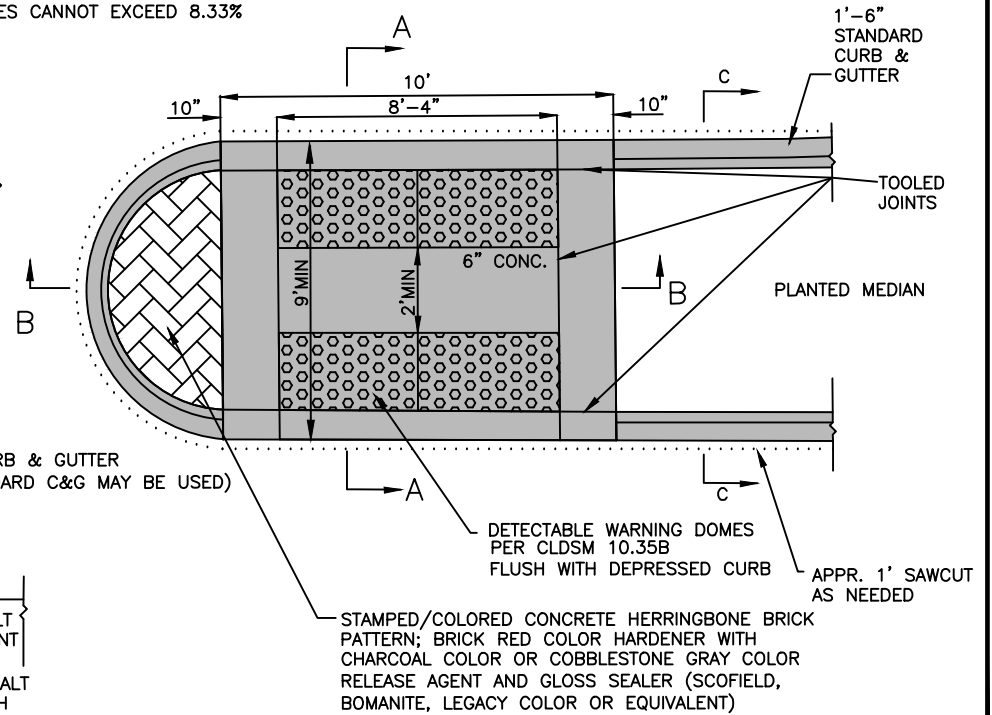
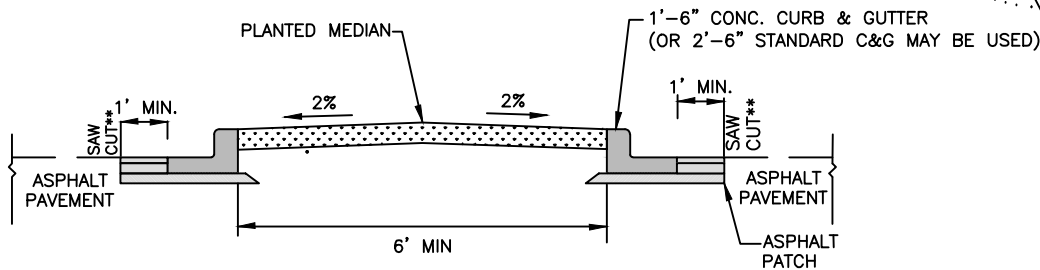
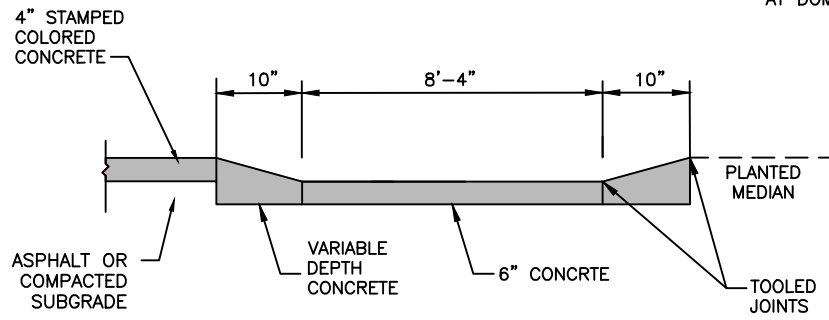
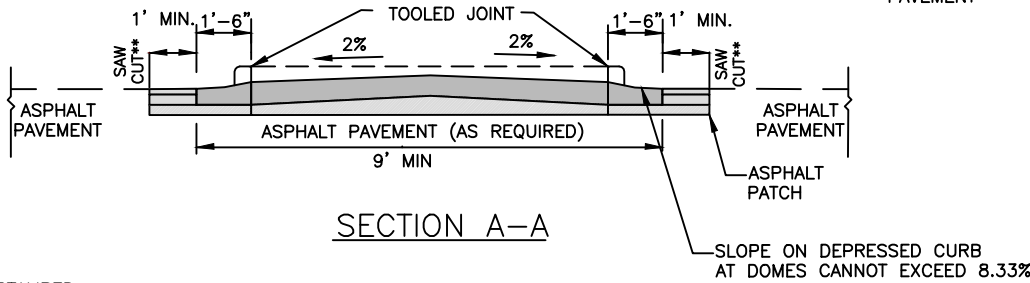
STD. NO.	REV.
10.40B	14



\*\* = SAWCUT AS  
NEEDED IF  
INSTALLED IN  
EXISTING  
PAVEMENT

NOTE:

1. THIS DETAIL MAY BE USED ON NCDOT-MAINTAINED STREETS ONLY WITH APPROVAL FROM NCDOT.
2. PROPOSED ASPHALT PATCH LAYER THICKNESS WILL VARY AS REQUIRED BY CDOT OR NCDOT.
3. ENSURE PEDESTRIAN PASS-THRU HAS ADEQUATE SLOPE DRAINAGE AND DOES NOT POND WATER.
4. STAMPED/COLORED CONCRETE PATTERN AND COLOR MAY BE ALTERED WITH CDOT APPROVAL.
5. THIS DETAIL MAY BE USED TO PROVIDE A PEDESTRIAN REFUGE PASS-THRU IN AN EXISTING MEDIAN WITH 1'-6" CURB & GUTTER.
6. FOR 1'-6" CURB AND GUTTER, USE CLDSM 10.17A FOR CITY STREETS OR NCDOT 846.01 FOR NCDOT STREETS.
7. NCDOT REQUIRES MILLING AND OVERLAY TO SEAL JOINT AT SAWCUTS SHOWN. FOR CITY STREETS MILLING AND OVERLAY MAY BE REQUIRED.
8. NCDOT REQUIRES 1' OFFSET FROM EDGE OF PAVEMENT ALONG CURBLINE TO LANE LINE.
9. NCDOT REQUIRES THAT ALL JOINTS IN THE ISLAND MUST BE SEALED PER NCDOT STANDARD.



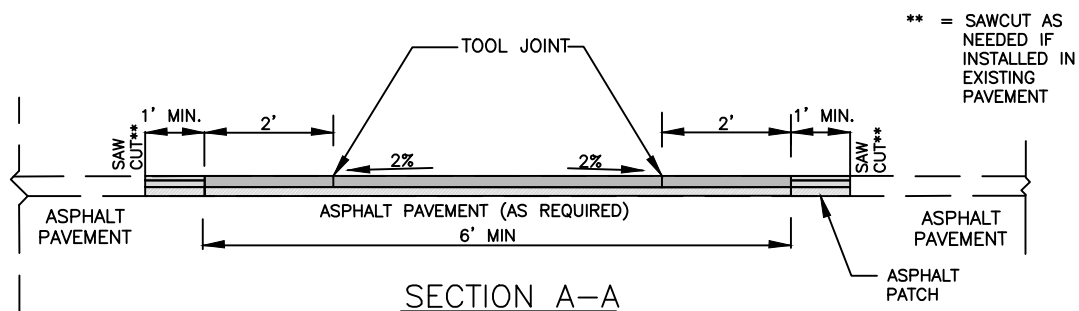
NOT TO SCALE



CITY OF CHARLOTTE  
LAND DEVELOPMENT STANDARDS  
INCLUDES CHARLOTTE ETJ

PEDESTRIAN REFUGE  
(WITH 1'-6" CURB & GUTTER)

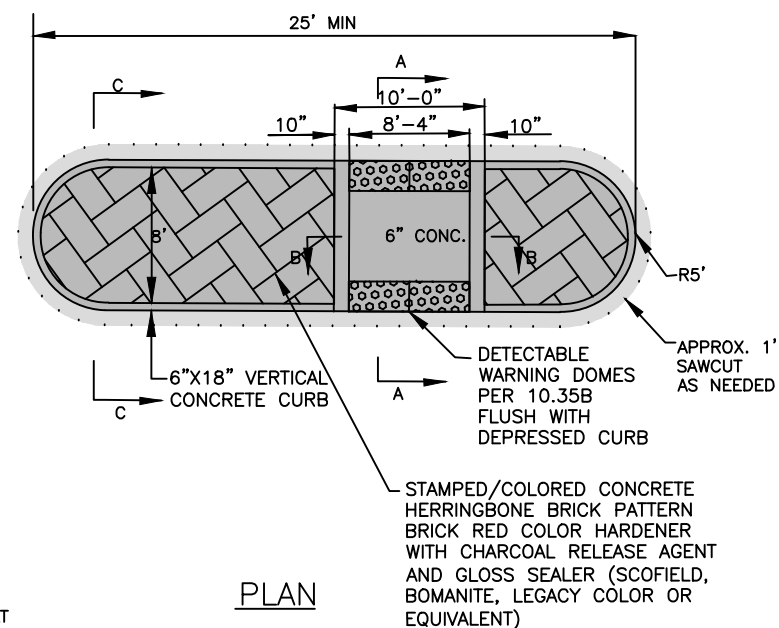
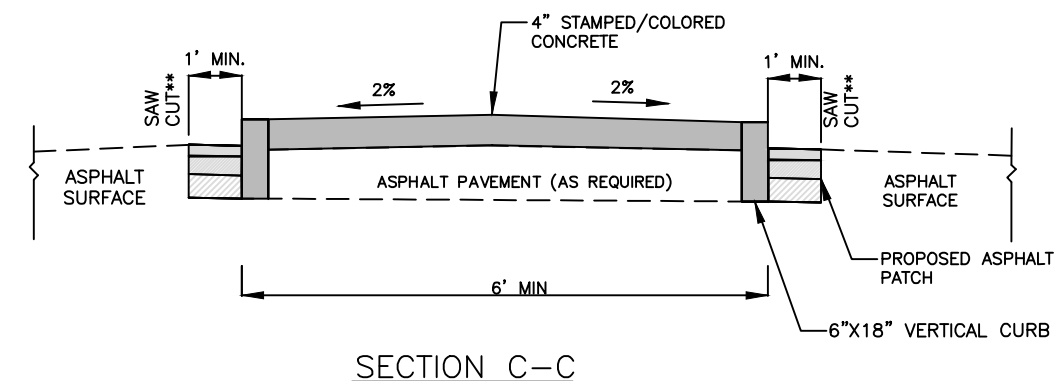
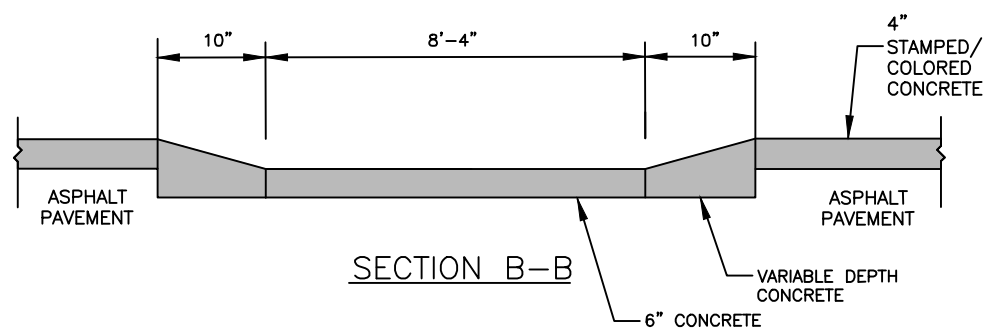
STD. NO.	REV.
10.41A	14



\*\* = SAWCUT AS  
NEEDED IF  
INSTALLED IN  
EXISTING  
PAVEMENT

#### NOTES:

1. THIS DETAIL IS APPROVED FOR CITY MAINTAINED STREETS ONLY.
2. PROPOSED ASPHALT PATCH LAYER THICKNESS WILL VARY AS REQUIRED BY CDOT.
3. ENSURE PEDESTRIAN PASS-THRU HAS ADEQUATE SLOPE DRAINAGE AND DOES NOT POND WATER.
4. STAMPED/COLORED CONCRETE PATTERN AND COLOR MAY BE ALTERED WITH CDOT APPROVAL.
5. THIS DETAIL MAY BE USED TO PROVIDE A PEDESTRIAN REFUGE PASS-THRU IN AN EXISTING MEDIAN WITH VERTICAL CURB.
6. MILLING AND OVERLAY MAY BE REQUIRED TO SEAL JOINTS AT SAWCUT LOCATIONS.



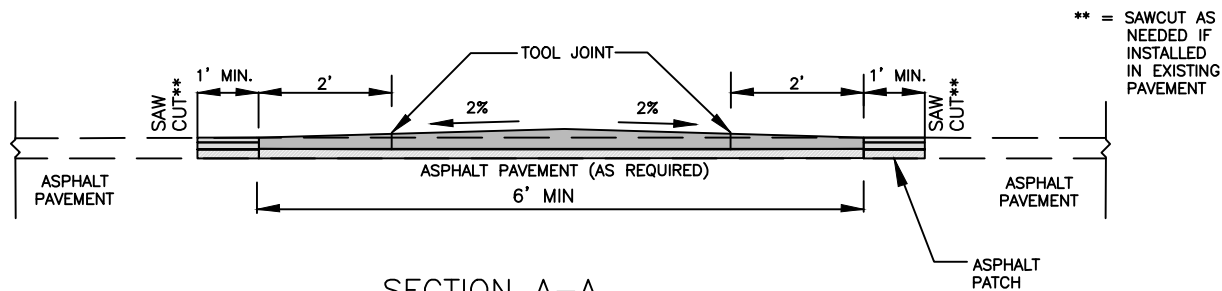
NOT TO SCALE



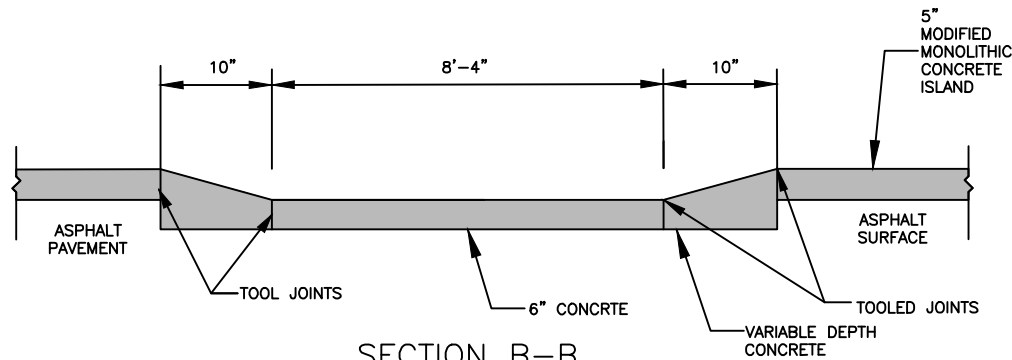
CITY OF CHARLOTTE  
LAND DEVELOPMENT STANDARDS

## PEDESTRIAN REFUGE (WITH VERTICAL CURB)

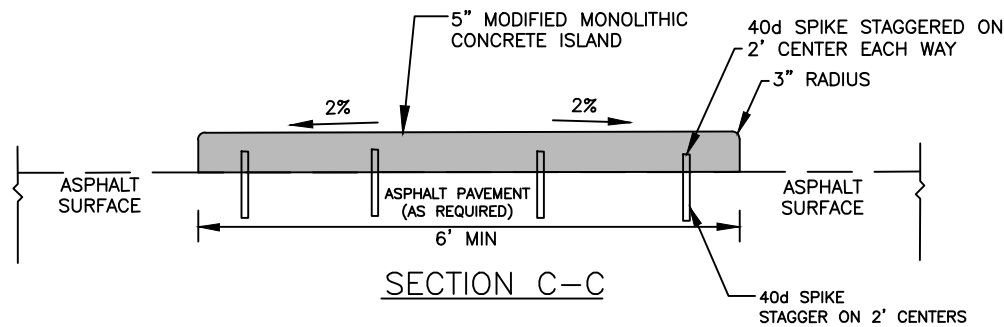
STD. NO.	REV.
10.41B	14



SECTION A-A



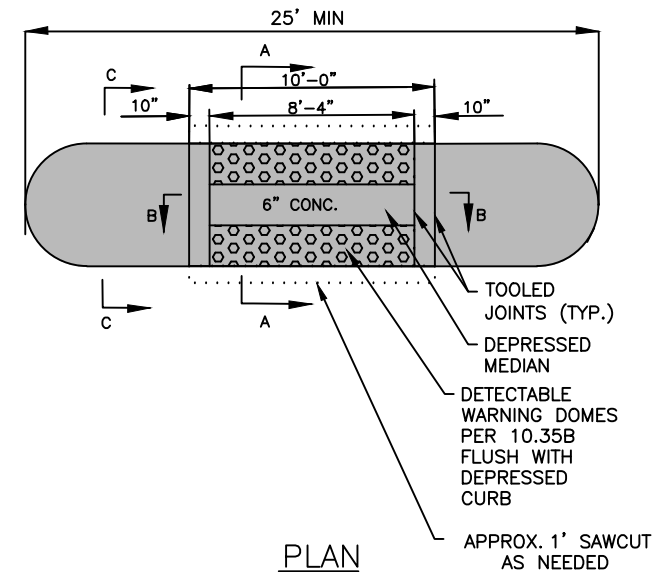
SECTION B-B



SECTION C-C

NOTES:

1. THIS DETAIL CAN ONLY BE USED WITH APPROVAL FROM CDOT OR NCDOT. 1'-6" CURB & GUTTER OR VERTICAL CURB PEDESTRIAN REFUGE DETAILS ARE PREFERRED.
2. PROPOSED ASPHALT PATCH LAYER THICKNESS WILL VARY AS REQUIRED BY CDOT OR NCDOT.
3. ENSURE PEDESTRIAN PASS-THRU HAS ADEQUATE SLOPE DRAINAGE AND DOES NOT POND WATER.
4. NCDOT REQUIRES MILLING AND OVERLAY TO SEAL JOINT AT SAWCUTS SHOWN. FOR CITY STREETS MILLING AND OVERLY MAY BE REQUIRED.
5. NCDOT REQUIRES 1' OFFSET FROM EDGE OF PAVEMENT ALONG CURBLINE TO LANE LINE.
6. NCDOT REQUIRES THAT ALL JOINTS BE SEALED PER NCDOT STANDARD.



PLAN

NOT TO SCALE



CITY OF CHARLOTTE  
LAND DEVELOPMENT STANDARDS  
INCLUDES CHARLOTTE ETJ

# PEDESTRIAN REFUGE (MODIFIED MONOLITHIC)

STD. NO.	REV.
10.41C	14